A
QE81
.A15
no.31

AUBURN
UNIVERSITY
LIBRARY

AUBURN UNIVERSITY
LIBRARY

A
QE81
.A15
no.31

aken
ding.

NON CIRCULATING

CAT.2-

A

GEOLOGICAL SURVEY OF ALABAMA
EUGENE ALLEN SMITH, STATE GEOLOGIST

BULLETIN 31

ANALYSES OF ALABAMA COALS

BY

CHARLES BUTTS

REPRINT OF TECHNICAL PAPER 347 OF THE UNITED STATES
BUREAU OF MINES

UNIVERSITY, ALABAMA
1926

PRESS OF
BIRMINGHAM PRINTING CO.
STATE PRINTERS AND BINDERS
BIRMINGHAM, ALA.
1926

LETTER OF TRANSMITTAL

To His Excellency, Governor William W. Brandon,
Montgomery, Alabama.

Dear Sir:

I have the honor to transmit herewith a report of the United States Bureau of Mines, entitled "Analyses of Alabama Coals," by Charles Butts, with request that it be reprinted as Bulletin 31 of the Geological Survey of Alabama.

For many years past there has been a great demand for reliable analyses and other details of our Alabama coal and the report herewith submitted supplies this information. To assemble all this independently would be practically impossible to the Alabama Survey since it would involve an expenditure of time and money wholly beyond our reach. With the hearty co-operation of the U. S. Bureau of Mines, however, in putting these data at our disposal, we are able to present them to the State for the comparatively insignificant cost of reprinting the Federal report.

Very respectfully,
EUGENE A. SMITH,
State Geologist.

University, Alabama.
April 1, 1926.

AUBURN UNIVERSITY LIBRARIES
AUBURN, ALABAMA 36830

A
QE81
.A15
no. 31
JUL 20 '60
CONNELL

PREFACE

One of the important functions of the Bureau of Mines has been the analyzing of samples of coal from every coal-mining State and from Alaska. The analyses are being published for the information of Government officials and the public.

These samples have been collected in mines by representatives of the Bureau of Mines and by geologists of the United States Geological Survey in investigations of mineral resources; they have been collected from coal delivered for the use of Government Departments—Treasury, Navy, and War—and for various Government institutions; they have also come from coal obtained for tests by the bureau in investigating the utilization of fuel and the explosibility of coal dust. Many samples have been collected and analyzed in connection with the work of various State geological surveys.

From time to time the Bureau of Mines has published the analytical results in large bulletins. Although the analyses in any one bulletin are grouped by States, or by special uses, to look up the analyses of coals from any particular section of the country necessitates the perusal of a number of bulletins, some of which are no longer available for free distribution.

Moreover, when the bureau receives an inquiry for analyses of coal from any desired part of the country, it constitutes a large wastage of printed documents to send a number of bulletins in order to show the analyses for only one mining district in a State, or even for an individual mine. It therefore is deemed expedient to republish the analyses of coal in a series of inexpensive publications, by separate States, or if the coal production is small in any State, by adjacent States, and to include a brief description, abstracted from the reports of the United States Geological Survey, of the geologic structure of the coal basins in the State, or group of States, as well as a brief description of the typical mining conditions in the different districts, and a statement of the production by counties as compiled by the United States Geological Survey.

Technical Paper 269, on Iowa coals, was the first of the series to be issued; this paper on Alabama coals is the sixth. From time to time the various papers will be revised to include later analyses.

D. A. LYON,
Acting Director.

317-806

CONTENTS

Page

Preface II

Coal fields of Alabama 1

  Geographic and geologic relations 1

    Warrior field 1

    Cahaba field 1

    Coosa field 1

    Plateau field 2

    Topography 3

    Geology 3

      Age of the coal beds 3

      Folds and faults 6

  Coal production 8

Mining methods 9

  Method of development 9

  Mining machines and explosives 10

  Occurrence of explosive gas 10

  Ventilation, timbering, and haulage 11

Analyses of mine samples 12

  Sources of information 12

  Fusibility of ash 12

Description of samples 46

  Bibb County 46

  Blount County 51

  Jefferson County 53

  Marion County 73

  St. Clair County 74

  Shelby County 78

  Tuscaloosa County 84

  Walker County 88

Analyses of delivered coal 100

Index 109

ILLUSTRATIONS

FIGURE 1. Coal fields of Alabama 2

2. Sections showing order of coal beds in the Warrior and Plateau coal fields 4

3. Sections showing order of coal beds in the Cahaba and Coosa fields 5

ANALYSES OF ALABAMA COALS

COAL FIELDS OF ALABAMA

By Charles Butts[1]

GEOGRAPHIC AND GEOLOGIC RELATIONS

The coal-bearing rocks of Alabama form the southern end of the Appalachian coal region, from the main body of which they are nearly separated at the Alabama-Tennessee State line by the erosion of streams flowing into the Tennessee River, and are naturally divided into four more or less completely separated fields, which are, in order of importance, the Warrior, Cahaba, Coosa, and Plateau. These fields are shown in Figure 1.

WARRIOR FIELD

The Warrior field is the greatly expanded southern end of the Appalachian region. It occupies all or parts of Jefferson, Walker, Tuscaloosa, Fayette, Marion, Winston, Cullman, Lawrence, and Franklin Counties, but the main productive part includes only the first four of these counties. Its known area is computed to be 4,000 square miles, but as it extends westward and southward an unknown distance beneath the cover of younger rocks, its probable area is much greater.

CAHABA FIELD

The Cahaba is a long narrow field extending northeast-southwest and lying about 7 miles southeast of the Warrior field, from which it is separated by Birmingham Valley. Its length is about 60 miles and its general width 5 or 6 miles, but at its southwest end it expands to a width of 15 miles. Its area is about 350 square miles.

COOSA FIELD

The Coosa field lies 2 to 5 miles southeast of the Cahaba field, from which it is separated by Cahaba Valley. It is also long and narrow, having a length of 51 miles and a width of about 5 miles.

---

[1] Geologist, U. S. Geological Survey.

The Yellowleaf, a small basin on the southeast, is separated from the rest of the field by a narrow anticline of rocks underlying the coal measures.

PLATEAU FIELD

The Plateau field is less well defined by natural boundaries than the others, being in part the northwestward continuation of the Warrior field. It is here defined as including all the detached or semidetached area of coal-bearing rocks northwest of a line drawn from the south end of Blount Mountain through Cullman to the north boundary of the Warrior basin. This location of the boundary leaves in the Warrior field the entire area of all its known productive coal beds.

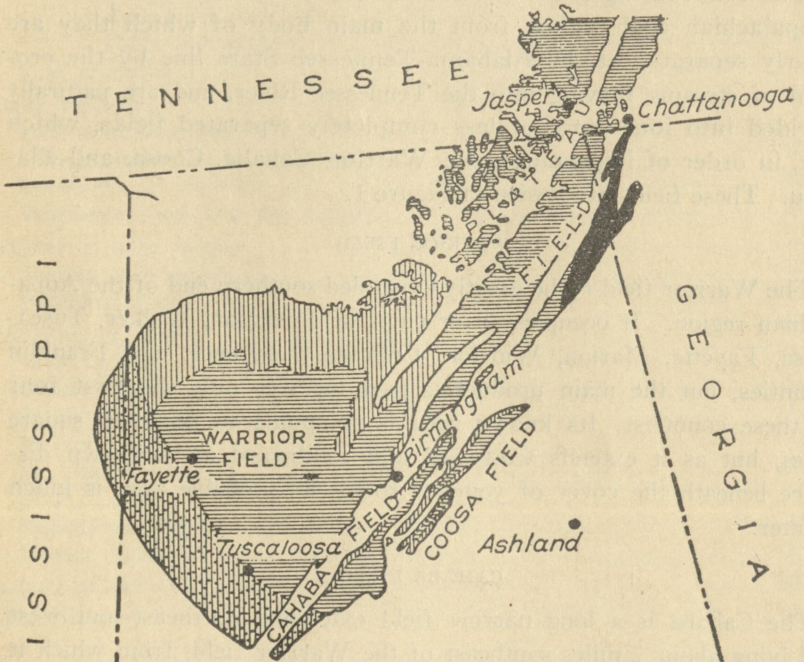
TENNESSEE
Jasper
Chattanooga
PLATEAU FIELD
GEORGIA
MISSISSIPPI
WARRIOR FIELD
Fayette
Birmingham
Tuscaloosa
CAHABA FIELD
COOSA FIELD
Ashland
ALABAMA
LEGEND
High-grade bituminous coal
Semibituminous coal

FIGURE 1.—Coal fields of Alabama. Horizontal shading represents areas known to contain coal beds that are of commercial value at present or may be of value in the near future; vertical shading denotes areas of doubtful value for coal. Vertical shading and stippling denote that the coal-bearing formations are under cover of younger rocks, from a few hundred feet to as much as 1,000 feet thick.

As thus defined, the Plateau field includes the plateaus of Blount Mountain, Sand or Raccoon Mountain, Lookout Mountain, and a number of small hills and ridges in Morgan, Marshall, and Jackson Counties. The entire area is estimated at 3,000 square miles.

TOPOGRAPHY

The surface of the Warrior and most of that of the Cahaba and Coosa fields is moderately hilly or rolling, and is largely forested. There are no unusual obstacles to the construction of highways and railroads. The northwestern sides of the Cahaba and Coosa fields are, however, marked by high steep ridges through which there are only a few passes. Most of the detached areas of the Plateau field occupy the tops of high mesalike hills that are in large part rimmed with cliffs of sandstone and conglomerate and hence are rather difficult of access.

GEOLOGY

The Alabama coal measures consist of sandstone, conglomerate, shale, and coal beds. At the bottom are one or more thick purely quartzose sandstones, locally conglomeratic with small and generally rather sparse quartz pebbles. These conglomeratic sandstone beds, because of their superior hardness and resistance, make high ridges along the northwestern margins of the Coosa and Cahaba fields and Sand Mountain on the southeast margin of the Warrior field. They are commonly known in Alabama as the "Millstone grit." The upper 2,000 feet or so of the rocks of the Cahaba field, present in the southeastern part, are likewise in large part coarse conglomerate. A bed of conglomerate of medium coarseness occurs near the middle of the rocks of the Warrior field. The total thickness of the coal measures of the Warrior field is about 2,600 feet; of the Cahaba field, 9,000 feet; and of the Coosa field, 7,500 feet. The maximum thickness in the Plateau field is not known, but probably does not exceed 1,000 or 1,200 feet. In most of the field the thickness is only a few hundred feet.

The positions of the coal beds of the different fields are shown in the sections of Figures 2 and 3. Important mining beds are indicated by a thick line; the beds that are known to be thin or that have been mined only in a small way are shown by a thin line.

AGE OF THE COAL BEDS

The Alabama coal measures form part of the Carboniferous system and are of Pottsville age, the name being taken from Pottsville in the southern anthracite field of eastern Pennsylvania. The Pottsville series is divided into lower, middle, and upper Pottsville. In the southern anthracite field the lower Pottsville includes the Lykens Valley and the Lykens Nos. 4, 5, and 6 coals; the middle Pottsville includes Lykens Nos. 3 and 2 coals and extends to the top of the conglomerate overlying them; and the upper Pottsville includes the Lykens No. 1 coal and extends to the top of the Buck Mountain bed.

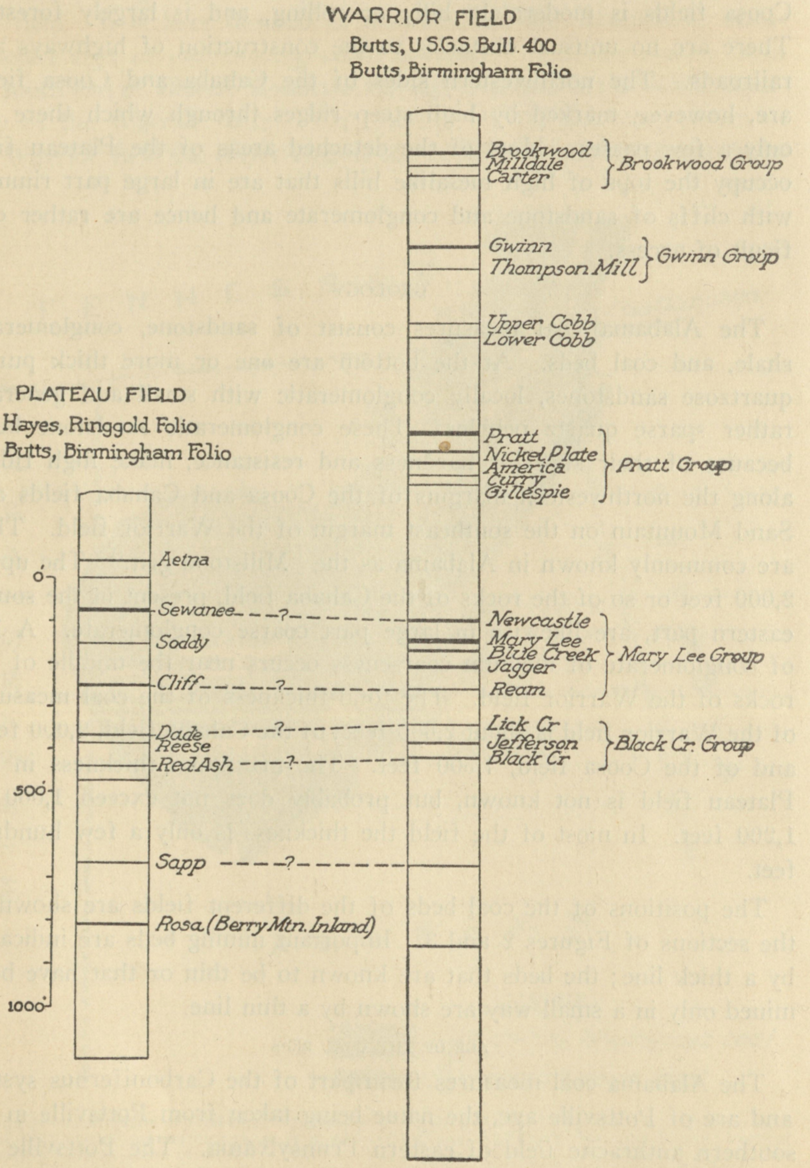
WARRIOR FIELD
Butts, U.S.G.S. Bull. 400
Butts, Birmingham Folio
Brookwood
Milldale
Carter
Brookwood Group
Gwinn
Thompson Mill
Gwinn Group
Upper Cobb
Lower Cobb
Pratt
Nickel Plate
America
Curry
Gillespie
Pratt Group
Newcastle
Mary Lee
Blue Creek
Jagger
Ream
Mary Lee Group
Lick Cr
Jefferson
Black Cr
Black Cr. Group
PLATEAU FIELD
Hayes, Ringgold Folio
Butts, Birmingham Folio
Aetna
0
Sewanee
?
Soddy
Cliff
?
Dade
?
Reese
Red Ash
?
500
Sapp
?
Rosa (Berry Mtn. Inland)
1000

FIGURE 2.—Sections showing order of coal beds in the Warrior and Plateau coal fields.

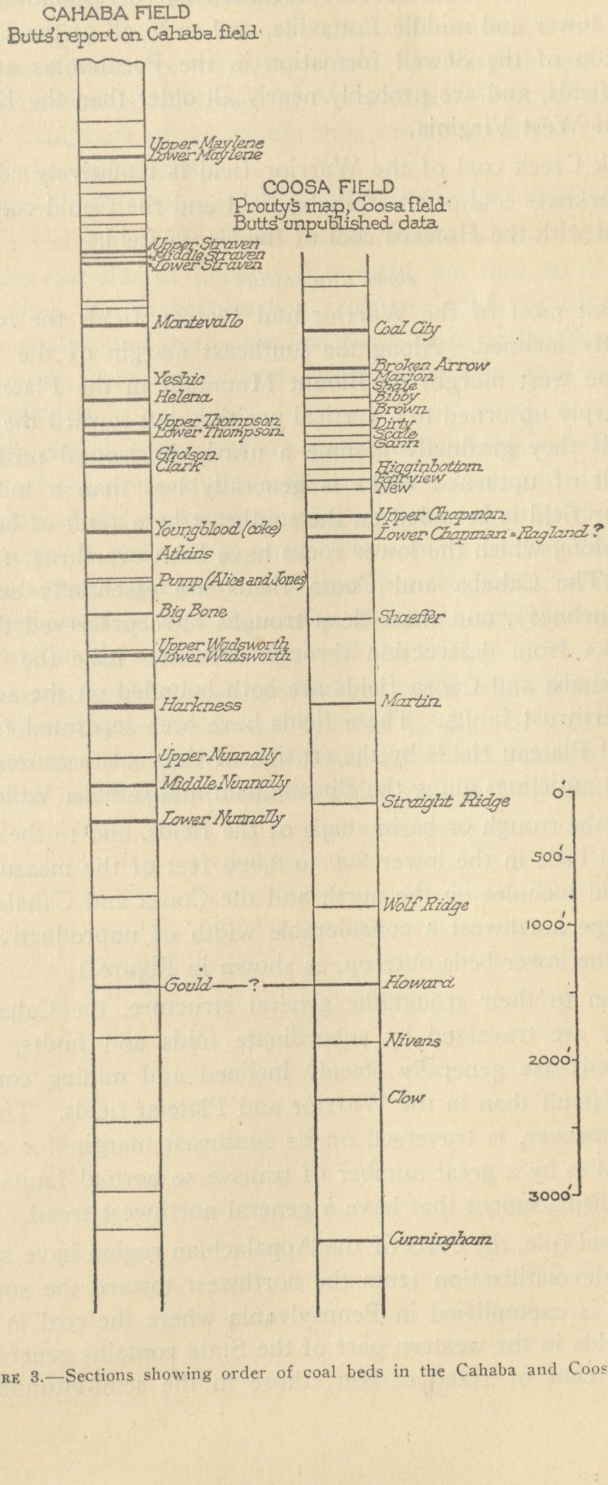
CAHABA FIELD
Butts' report on Cahaba field
Upper Maylene
Lower Maylene
Upper Straven
Middle Straven
Lower Straven
Montevallo
Yeshic
Helena
Upper Thompson
Lower Thompson
Gholson
Clark
Youngblood (coke)
Atkins
Pump (Alice and Jones)
Big Bone
Upper Wadsworth
Lower Wadsworth
Harkness
Upper Nunnally
Middle Nunnally
Lower Nunnally
Gould——?
COOSA FIELD
Prouty's map, Coosa field
Butts' unpublished data
Coal City
Broken Arrow
Marion
Shale
Bibby
Brown
Dirty
Scale
Gann
Higginbottom
Fairview
New
Upper Chapman
Lower Chapman = Ragland ?
Shaeffer
Martin
Straight Ridge
Wolf Ridge
Howard
Nivens
Clow
Cunningham
0'
500'
1000'
2000'
3000'

FIGURE 3.—Sections showing order of coal beds in the Cahaba and Coosa fields.

The Alabama coal measures are regarded as corresponding in the main to the lower and middle Pottsville, and so to all of the Pottsville below the top of the Sewell formation in the Pocahontas and New River coal fields, and are probably nearly all older than the Kanawha formation of West Virginia.

The Black Creek coal of the Warrior field is tentatively correlated with the Harkness coal of the Cahaba field and the Gould coal of the Cahaba field with the Howard coal of the Coosa field.

FOLDS AND FAULTS

Throughout most of the Warrior and Plateau fields the rocks are flat or gently inclined. Along the southeast margin of the Warrior field and the west margin of Blount Mountain in the Plateau field they are sharply upturned to a vertical position, but toward the interior of the fields they gradually assume a nearly horizontal position, so that the belt of upturned rocks is generally less than a mile wide. The Warrior field is bounded on the southeast by a fault of large displacement, along which the lower rocks have been overthrust from the southeast. The Cahaba and Coosa fields are essentially structural troughs (synclines), and these deep troughs have preserved the coal-bearing rocks from destruction through erosion. Like the Warrior field, the Cahaba and Coosa fields are both bounded on the southeast by great overthrust faults. These fields have been separated from the Warrior and Plateau fields by the erosion of the coal measures on the crests of the anticlines along the Birmingham and Cahaba Valleys.

Owing to the trough or basin shape of the fields, and to the absence of thick coal beds in the lower 800 to 2,000 feet of the measures, the Warrior field includes on the north and the Coosa and Cahaba fields include on the northwest a considerable width of unproductive territory where the lower beds outcrop, as shown in Figure 1.

In addition to their troughlike general structure, the Cahaba and Coosa fields are traversed by subordinate folds and faults, so that their coal beds are generally steeply inclined and mining conditions are more difficult than in the Warrior and Plateau fields. The Warrior field, however, is traversed on its southeast margin for a width of 5 to 10 miles by a great number of transverse normal faults of 100 to 200 feet displacement that have a general northwest trend.

As a general rule, the coals of the Appalachian region have suffered progressive devolatilization from the northwest toward the southeast. This change is exemplified in Pennsylvania where the coal in the bituminous fields in the western part of the State contains generally less than 69 per cent of fixed carbon; those in the semi-bituminous or "smokeless" fields of Somerset, Cambria, and Clearfield Counties contain 70 to 78 per cent; and those in the anthracite fields in the east contain from 82 to more than 90 per cent. In Virginia and West Virginia the Pocahontas field, and in Alabama and Georgia the Lookout Mountain field, both of semibituminous rank, are on the extreme east margin of the coal region.

From these circumstances one would naturally expect that the Coosa and Cahaba fields would contain coals of the same rank as those in the east side of Lookout Mountain, but they do not. As the analyses show, the highest carbon coals are those of the Pratt and Mary Lee coal groups in the shallow Pratt basin of the Warrior field, which extends from Ensley and Palos on the northeast to Abernant on the southwest.

The high carbon content of the coals in that basin is believed to be the result of the pressure from the southeast that caused the folding and faulting of the rocks of the Appalachian region. The immobile mass of rocks in the central and western parts of the Warrior field acted as a buttress against which the compressive force from the southeast exerted itself, and produced the maximum actual compression in the area of the highest carbon coals of the field.

With respect to the Coosa and Cahaba fields it is supposed that the pressure from the southeast was relieved by the faults or breaks that bound each on the southeast and hence the actual squeezing and compression was less than in the area of high-carbon coals of the Warrior field.

COAL PRODUCTION

Table 1 gives details of coal production[2] in Alabama during 1919, 1920, and 1921:

TABLE 1.—*Coal production of Alabama in 1919-1921*

County	Production (net tons)					Number of employees				Average number of days worked
						Underground				
	Loaded at mines for shipment	Sold to local trade and used by employees	Used at mines for steam and heat	Made into coke at mines	Total	Miners†	All others	Surface	Total	
1919										
Bibb	984,845	7,616	41,638	....	1,034.099	1,672		424	2,096	228
Blount	271,263	2,243	10,100	....	283,606	411		169	580	212
Etowah	87,664	1,140	2,593	....	91,397	153		55	208	253
Jefferson	6,547,911	84,073	284,662	631,921	7,548,567	9,578		2,574	12,152	254
St. Clair	635,067	7,122	21,809	4,306	668,304	657		373	1,030	260
Shelby	525,057	6,191	31,615	....	562,863	911		377	1,288	230
Tuscaloosa	588,322	4,548	24,227	255,681	872,778	1,308		433	1,741	259
Walker	4,065,593	83,166	108,090	33,449	4,290,298	5,703		1,645	7,348	212
Winston	58,921	2,035	4,050	....	65,006	82		55	137	184
Other counties‡	105,037	1,988	12,365	....	119,390	185		109	294	252
Small mines	....	413	....	....	413	....		....	....	....
	§13,869,680	200,535	541,149	925,357	15,536,721	20,660		6,214	26,874	239
1920										
Bibb	934,555	6,207	27,249	....	968,011	947	556	335	1,838	174
Blount	279,809	5,575	....	....	285,384	410	100	115	625	189
Etowah	73,755	1,104	1,709	....	76,568	102	26	39	167	223
Jefferson	6,851,632	148,003	270,198	450,077	7,719,910	5,742	3,458	2,177	11,377	264
St. Clair	629,936	7,289	24,984	....	662,209	334	184	112	630	192
Shelby	547,164	8,497	31,335	....	586,996	647	330	212	1,189	279
Tuscaloosa	671,628	5,336	14,926	222,293	914,183	937	377	418	1,732	272
Walker	4,470,876	167,825	99,093	30,663	4,768,457	4,320	1,611	1,718	7,649	238
Winston	35,629	816	50	....	36,495	53	23	15	91	211
Other counties‡	108,159	1,544	12,183	....	121,886	155	43	44	242	221
Small mines	154,000	....	....	....	154,000	....	....	....	....	....
	§14,757,143	352,196	481,727	703,033	16,294,099	13,647	6,708	5,185	25,540	247
1921¶										
Bibb	616,709	6,112	21,171	....	643,992	1,009	426	280	1,715	150
Blount	298,712	1,878	1,800	....	302,390	437	62	136	635	177
Etowah	72,869	765	1,473	....	75,107	147	35	44	226	172
Jefferson	5,585,362	91,138	167,338	20,637	5,864,475	6,468	3,067	1,757	11,292	173
St. Clair	622,355	5,029	18,828	....	646,212	509	202	124	835	203
Shelby	429,614	7,670	23,212	....	460,496	681	227	181	1,089	192
Tuscaloosa	411,514	7,209	11,958	107,721	538,402	1,053	340	229	1,622	129
Walker	3,685,128	191,487	43,269	....	3,919,884	4,816	1,450	1,827	8,093	158
Winston	33,150	....	....	....	33,150	89	32	25	146	181
Other counties‡	79,196	1,837	3,758	....	84,791	95	28	33	156	142
	§11,834,609	313,125	292,807	128,358	12,568,899	15,304	5,869	4,636	25,809	166

† Includes also loaders and shot firers.
‡ Cullman and Marion.
§ Includes coal for by-product coke ovens transported over private railroads.
¶ Exclusive of product of wagon mines.

The average value of the coal during the three years mentioned was $2.96, $3.65, and $3.08 per ton, respectively.

Coal production during 1922 amounted to 18,324,740 tons, and during 1923 to 18,200,000 tons.

---

[2] Tryon, F. G., and Hale, S. A., Coal in 1919, 1920, and 1921: U. S. Geol. Survey, Mineral Resources for 1921, pt. 2, 1923, p. 560.

MINING METHODS

By J. J. Forbes[3]

As stated in the section on "Geographic and Geologic Relations," the coal beds of Alabama are divided into four fields, designated the Warrior, Cahaba, Coosa, and Plateau. Over 99 per cent of the coal mined is derived from the Cahaba and Warrior fields; the production of the Warrior field approximates six to seven times that of the Cahaba.

The coal is used for steam, coking, and domestic purposes, and is consumed mostly within a comparatively short distance from the mines, about 85 per cent being consumed in the State and by the railroads.

About 50 per cent of the coal produced in the State is cleaned before shipment; washeries and mechanical cleaners are extensively used. About 35 per cent of the annual coal output is manufactured into metallurgical coke and by-products. The bulk of the coke made is used mainly in the blast furnaces of the Birmingham district, which is the center of the iron and steel industry of the South. Most of the coking coal comes from the beds of the Warrior field.

Mining is done in more than 30 workable beds which range in thickness from about 2 to 10 feet, with an average thickness of 4 feet. The dip of the coal beds ranges from practically horizontal to, in places, vertical. The chief producing beds in the Warrior fields are nearly flat, but those of the Cahaba range from slightly dipping to comparatively steeply dipping.

METHOD OF DEVELOPMENT

Mines are generally opened by drifts and slopes, although vertical shafts are employed to a limited extent by some of the companies. The principal method of mining is the ordinary room-and-pillar system. A modified advancing longwall system is being used in three mines in the Cahaba field. In some coal beds the cleat is fairly well-defined; in others it is not; consequently little attention is given to mining on the butt and face cleats of the coal, except possibly at those mines in which the cleat is good.

---

[3] Mining engineer, Bureau of Mines.

In the pitching beds of the Cahaba field the coal beds are opened by slopes that follow the coal from the outcrop. At intervals of 200 to 300 feet along slopes, entries or lifts are turned right and left along the strike of the bed, with aircourses paralleling them, generally on the dip side. Lifts as a rule follow the undulations of the bed on slight rising grades to accommodate loads in transportation, and to drain any water encountered as entries advance. Rooms are turned off lifts to the rise on 35 to 60 foot centers, and the coal is won either by the gravity or the chute method or a modification of these methods.

The method employed is determined almost wholly by the pitch of the bed; however, the general practice is to use the gravity method on pitches up to about 15° and the chute system for pitches in excess of 15°. At mines using the gravity method, rooms are driven to the rise on 40 to 60 foot centers, and are double tracked with tracks running close to room ribs and extended to about 10 feet from the room face. Pulleys 8 to 12 inches in diameter are clevised to posts set about 5 feet in advance of room tracks. Wire rope encircling pulleys and of ample length to care for room advance is attached to loaded and empty cars. An improvised braking device situated midway and in line with the pulleys is operated by the miners, who can by this device regulate the speed of an outgoing loaded car pulling an incoming empty car to the face.

At mines where the chute method is used rooms are generally driven to the rise on 35 to 40 foot centers, and at right angles to the entry. Rooms are generally turned off the entry 12 feet wide for 12 to 15 feet, and then widened to permit a 10 to 15 foot pillar between them. Wooden chutes lined with sheet iron are laid in the center of rooms, and are braced with props at varying intervals. Coal is loaded into chutes and drawn off into cars on entries. The distance between crosscuts in rooms differs with conditions; but is generally 35 feet.

MINING MACHINES AND EXPLOSIVES

According to the State mine inspector's report for 1920, 45 per cent of the tonnage was mined by machines, while 55 per cent was solid work. Mining machines for undercutting the coal are employed extensively in the flat beds of the Warrior field, whereas very little machine mining is done in the Cahaba field. Coal is broken down at the face by permissible explosives and black blasting powder. Approximately 80 per cent of the total output is produced by permissible explosives, and 20 per cent by black blasting powder.

OCCURRENCE OF EXPLOSIVE GAS

As the Alabama mines have become deeper and more extensively developed, particularly those in the Warrior and Cahaba fields, greater care in their operation has become necessary owing to the appearance in the mine workings of explosive gas which has been responsible for a number of explosions resulting in loss of life. Methane is generated in about 20 per cent of the producing mines, which represent about 50 to 55 per cent of the annual output of coal.

The large producing beds of the Warrior field and a number of the pitching seams of the Cahaba field generate gas in explosive quantities; and if for any reason ventilation were stopped or temporarily out of order dangerous accumulations would result. The more progressive operators are meeting this condition by installing more efficient ventilation, by employing permissible explosives and closed lights, and by using electric equipment in fresh air currents only or by providing permissible electrical equipment.

VENTILATION, TIMBERING, AND HAULAGE

Ventilation is generally mechanical or natural. Natural ventilation is used by small mines that are working seams above drainage. In general, rooms are not turned off air courses.

The roof above the various coal beds is fairly good, therefore comparatively little timbering is necessary. However, at some mines where the roof is poor, ordinary drift sets or props are employed at regular intervals in advance work. A small percentage of this timber is recovered when pillars are extracted.

Haulage methods vary according to the conditions encountered in mining operations. Electric locomotives are used extensively in the Warrior field, although many mines employ endless rope haulage and modified rope haulage. Animal haulage is used principally for gathering in this field. Animal and rope haulage are most widely used in the Cahaba field.

In Alabama 45 to 60 per cent of the coal is usually extracted in first mining. The percentage of recovery ranges from 55 to 90 per cent, but the average can reasonably be placed at 75 per cent.[4]

---

[4] Sixty-seven per cent is the average given in "Amount and nature of losses in mining bituminous coal in the Eastern United States," a report of the Bureau of Mines to the U. S. Coal Commission, July, 1923.

ANALYSES OF MINE SAMPLES

By A. C. Fieldner,[5] H. M. Cooper,[6] and F. D. Osgood[7]

The analyses in Table 2 are arranged geographically with respect to counties and towns, and are grouped as follows:

1. The proximate analysis—moisture, volatile matter, fixed carbon, and ash.

2. The ultimate analysis—carbon, hydrogen, nitrogen, oxygen, sulphur, and ash.

3. The calorific value or heat of combustion.

4. The softening temperature of ash, when such determinations were made.

Ultimate analyses are given in three conditions: (1) As received, (2) moisture free, and (3) moisture and ash free. Proximate analyses and heating values are given in two conditions: (1) As received, and (2) moisture free.

The as-received condition represents the sample as received at the laboratory, while the moisture-free condition represents the composition and heating value of the dry coal. The moisture and ash free condition represents approximately the composition and calorific value of the dry combustible matter.

SOURCES OF INFORMATION

Table 2 contains chemical analyses of coals collected from mines and prospects at various times during systematic surveys of the State coal resources by geologists of the United States Geological Survey and engineers of the Bureau of Mines. These analyses have been copied from various published reports of the Bureau of Mines and United States Geological Survey, including all analyses to July 1, 1922, which have not been published before. The analyses and calorimetric determinations were made in the laboratories of these organizations by the standard methods described[8] in Technical Paper 8.

---

[5] Supervising fuels chemist, Pittsburgh experiment station.

[6] Chemist, Pittsburgh experiment station.

[7] Assistant chemist, Pittsburgh experiment station.

[8] Stanton, F. M., and Fieldner, A. C., Methods of analyzing coal and coke: Tech. Paper 8, Bureau of Mines, 1913, 42 pp.

The analyses are given to the nearest 0.1 per cent and the B. t. u. to the nearest 10, although the laboratory determinations are made to the nearest 0.01 per cent and the nearest unit B. t. u.

FUSIBILITY OF ASH

The softening temperatures of ash from the coals of the United States[9] range from 1,900° to 3,100° F. For convenience, the order of fusibility may be expressed by subdividing this range into three groups, as follows:

Class I. Refractory ash, softening above 2,600° F.

Class II. Ash of medium fusibility, softening between 2,200° and 2,600° F.

Class III. Easily fusible ash, softening below 2,200° F.

The softening temperature is defined as the temperature at which a cone of the ash, when heated in the test furnace with a slightly reducing atmosphere, has fused down to a spherical lump.

The Bureau of Mines has tested the softening temperature of ash of a large number of coals in the United States. The Alabama coals that were tested gave a wide range of fusibility from the easily fusible class III to the very refractory class I. The most refractory ash occurs in coals from the Mary Lee, Jagger, America, Brookwood and Blue Creek beds, which are all in the upper part of class I. Occasional samples with very refractory ash also occur in the Black Creek, Nickle Plate, and Pratt beds; but generally, ash from these beds falls in the upper limits of class II. Ash from other beds is in class II, usually the lower part—that is, with softening temperature below 2,400° F. The Thompson, Youngblood, Clark, and Gholson beds are classed in the easily fusible class III group, while a few samples from other beds which ordinarily are in a higher group are also found in this class. The temperatures observed will be found in Table 2, column 17.

---

[9] Selvig, W. A., and Fieldner, A. C., Fusibility of ash from coals of the United States: Bull. 209, Bureau of Mines, 1922, 119 pp.

TABLE 2.—*Chemical analyses of mine samples*

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature‖ (° F.)	Reference‖	
	Laboratory No.†	Kind‡	Conditions§	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
BIBB COUNTY																		
Belle Ellen, Belle Ellen mine, Youngblood bed (face of 19 south heading).	26276	A	1	2.7	34.7	57.9	4.7	1.3	-----	-----	-----	-----	1.6	7,900	14,220	2,220	193	----
Same (face of 22 north heading)	26277	A	1	2.7	35.6	56.0	5.7	1.4	-----	-----	-----	-----	1.5	7,822	14,080	2,050	193	----
Same (face of 2 cross heading, 23 north heading)	26278	A	1	2.6	35.7	56.1	5.6	1.3	-----	-----	-----	-----	1.4	7,789	14,020	2,060	193	----
Same (face of 70 room, 18 north headings)	26279	A	1	2.5	34.9	57.8	4.8	1.2	-----	-----	-----	-----	1.5	7,928	14,270	2,010	193	----
Same (face of 19 north heading)	26280	A	1	3.4	33.1	58.6	4.9	1.5	-----	-----	-----	-----	2.3	7,856	14,140	2,030	193	----
Same (composite of samples 26276 to 26280, inclusive).	26281	A	1	2.7	34.7	57.4	5.2	1.3	5.3	79.7	1.4	7.1	1.7	7,867	14,160	------	193	----
			2	-----	36.6	59.1	5.3	1.3	5.1	81.9	1.5	4.9	-----	8,087	14,550	------	------	----
			3	-----	37.7	62.3	-----	1.4	5.4	86.5	1.5	5.2	-----	8,539	15,370	------	------	----
Belle Ellen No 2 mine, Younblood bed (face of 8 north heading).	9254	B	1	3.1	31.4	59.7	5.8	1.2	-----	-----	-----	-----	2.1	7,794	14,030	------	22	----
			2	-----	32.4	61.6	6.0	1.3	-----	-----	-----	-----	-----	8,044	14,480	------	------	----
Same (face of 33 room, 9 south heading)	9255	B	1	3.2	31.1	59.5	6.2	1.2	5.3	78.3	1.4	7.6	2.0	7,856	14,140	------	22	----
			2	-----	32.1	61.5	6.4	1.2	5.1	80.8	1,4	5.1	-----	8,111	14,600	------	------	----
			3	-----	34.3	65.7	-----	1.3	5.5	86.4	1.5	5.3	-----	8,667	15,600	------	------	----
3 miles north of; Cane Creek No. 2 mine, Youngblood bed (face of 26 room, 6 heading).	3034	A	1	3.7	33.5	59.7	3.1	1.2	-----	-----	-----	-----	2.6	7,994	14,390	------	22	----
			2	-----	34.8	61.9	3.3	1.3	-----	-----	-----	-----	-----	8,300	14,940	------	------	----
Same (face of 19 room, 9 entry)	3035	A	1	3.6	34.1	59.8	2.5	1.5	-----	-----	-----	-----	2.4	------	-------	------	22	----
			2	-----	35.4	62.0	2.6	1.6	-----	-----	-----	-----	-----	------	-------	------	------	----
Blocton, Klondyke shaft mine, Woodstock bed (face of 1 east entry).	82716	A	1	4.5	33.6	58.4	3.5	1.0	-----	-----	-----	-----	3.3	7,772	13,990	2,340	------	46
Same (face of 2 east heading)	82717	A	1	4.0	33.3	59.1	3.6	1.1	-----	-----	-----	-----	2.8	7,833	14,100	2,340	------	----
Same (face of 2 cross heading, 2 east heading)	82718	A	1	4.2	34.4	58.3	3.1	1.0	-----	-----	-----	-----	3.1	7,872	14,170	2,340	------	----
Same (face of 2 north entry)	82719	A	1	2.9	34.3	59.6	3.2	1.1	-----	-----	-----	-----	1.7	7,944	14,300	2,280	------	----
Same (composite of samples 82716 to 82719, inclusive).	82720	A	1	3.9	34.0	58.8	3.3	1.0	5.4	79.5	1.4	9.4	2.8	7,850	14,130	------	------	----
			2	-----	35.4	61.2	3.4	1.1	5.2	82.8	1.5	6.0	-----	8,172	14,710	------	------	----
			3	-----	36.6	63.4	-----	1.1	5.4	85.7	1.5	6.3	-----	8,461	15,230	------	------	----
1 mile northeast of; No. 4 slope mine, Woodstock bed (face of 3 cross heading, 1 east entry).	82799	A	1	2.7	35.3	58.7	3.3	1.1	-----	-----	-----	-----	1.1	7,922	14,260	2,200	------	46
Same (face of 2 cross heading, 1 east entry)	82800	A	1	2.7	35.2	58.3	3.8	1.2	-----	-----	-----	-----	1.1	7,894	14,210	2,180	------	----
Same (face of 4 east entry)	82801	A	1	2.5	35.3	59.0	3.2	1.0	-----	-----	-----	-----	1.0	7,956	14,320	2,240	------	----
Same (face of 4 west entry)	82802	A	1	2.6	34.5	58.1	4.8	1.1	-----	-----	-----	-----	1.2	7,794	14,030	2,280	------	----
Same (composite of samples 82799 to 82802, inclusive).	82803	A	1	2.6	34.8	59.0	3.6	1.1	5.4	80.1	1.4	8.4	1.1	7,894	14,210	------	------	----
			2	-----	35.7	60.6	3.7	1.1	5.3	82.3	1.4	6.2	-----	8,100	14,580	------	------	----
			3	-----	37.1	62.9	-----	1.2	5.5	85.5	1.5	6.3	-----	8,417	15,150	------	------	----
1 mile south of; Blocton No. 10 mine, Woodstock bed (300 feet back from face of 4 right entry).	83898	A	1	3.1	35.0	55.1	6.8	1.0	-----	-----	-----	-----	2.1	7,538	13,570	2,110	------	47
Same (75 feet back from face of 5 right entry)	83899	A	1	2.7	35.7	53.8	7.8	1.1	-----	-----	-----	-----	1.8	7,480	13,460	2,170	------	----
Same (face of 6 right entry)	83900	A	1	2.7	34.7	51.6	11.0	1.4	-----	-----	-----	-----	2.0	7,235	13,020	2,150	------	----

Same (face of main slope, 50 feet back from face)	83901	A	1	2.3	33.6	51.1	13.0	1.4	-----	-----	-----	-----	1.4	7,088	12,760	2,180	------	----
Same (100 feet from face of 6 left entry)	83902	A	1	2.8	33.6	52.0	11.6	1.3	-----	-----	-----	-----	2.0	7,160	12,890	2,180	------	----
Same (face of 5 left entry)	83903	A	1	2.8	36.0	54.5	6.7	1.0	-----	-----	-----	-----	1.9	7,617	13,710	2,110	------	----
Same (composite of samples 83898 to 83903, inclusive).	83904	A	1	2.8	34.8	53.0	9.4	1.2	5.1	74.7	1.4	8.2	1.9	7,389	13,300	------	------	----
			2	-----	35.8	54.5	9.7	1.2	4.9	76.9	1.4	5.9	-----	7,600	13,680	------	------	----
			3	-----	39.6	60.4	-----	1.3	5.4	85.2	1.6	6.5	-----	8,417	15,150	------	------	----
1¼ miles east of; Blocton No. 7 mine, Thompson bed (face of 6 cross entry, 14 east heading).	7394	A	1	3.2	32.1	60.7	4.0	0.6	5.5	77.9	1.2	10.8	2.1	7,789	14,020	------	22	----
			2	-----	33.1	62.8	4.1	.6	5.4	80.5	1.2	8.2	-----	8,050	14,490	------	------	----
			3	-----	34.5	65.5	-----	.7	5.6	83.9	1.3	8.5	-----	8,389	15,100	------	------	----
Same (face of 9 room, 2 east entry, left cross heading).	7395	A	1	3.5	32.1	59.5	4.9	.7	-----	-----	-----	-----	2.4	7,661	13,790	------	22	----
			2	-----	33.2	61.7	5.1	.7	-----	-----	-----	-----	-----	7,933	14,280	------	------	----
3½ miles east of; Tico mine, Thompson bed (face of 1 right heading).	83044	A	1	3.8	34.7	58.8	2.7	.8	-----	-----	-----	-----	1.9	7,878	14,180	2,130	------	47
Same (face of 38 room, 1 right heading)	83045	A	1	3.3	35.8	58.8	2.1	.7	-----	-----	-----	-----	1.4	7,944	14,300	2,110	------	----
Same (face of 32 room, 1 right heading)	83046	A	1	4.0	34.7	59.5	1.8	.8	-----	-----	-----	-----	1.9	7,917	14,250	2,130	------	----
Same (rib of 17 room, 1 right heading)	83047	A	1	3.9	35.3	56.8	4.0	.8	-----	-----	-----	-----	2.0	7,683	13,830	2,200	------	----
Same (face of 5 room, 1 right heading)	83048	A	1	3.9	35.1	58.3	2.7	.9	-----	-----	-----	-----	1.8	7,794	14,030	2,090	------	----
Same (composite of samples 83044 to 83048, inclusive).	83049	A	1	3.7	35.0	58.6	2.7	.9	5.4	79.7	1.3	10.0	1.8	7,850	14,130	------	------	----
			2	-----	36.3	60.9	2.8	.9	5.2	82.8	1.3	7.0	-----	8,150	14,670	------	------	----
			3	-----	37.4	62.6	-----	.9	5.3	85.2	1.4	7.2	-----	8,383	15.090	------	------	----
4 miles south of; Red Feather mine, Thompson bed (face of 1 left heading, 1 east entry).	83013	A	1	4.1	35.6	54.2	6.1	1.4	-----	-----	-----	-----	3.0	7,461	13,430	2,200	------	48
Same (face of 20 room, 1 east entry)	83014	A	1	4.3	35.0	54.5	6.2	1.6	-----	-----	-----	-----	2.8	7,467	13,440	2,130	------	----
Same (face of 2 cross heading, 1 east entry)	83015	A	1	3.4	35.6	52.9	8.1	1.5	-----	-----	-----	-----	2.2	7,383	13,290	2,090	------	----
Same (face of 2 dip heading, 2 cross heading, 1 east entry).	83016	A	1	3.7	35.5	51.3	9.5	1.4	-----	-----	-----	-----	2.3	7,189	12,940	2,110	------	----
Same (face of "A" entry)	83017	A	1	6.8	33.4	53.4	6.4	1.3	-----	-----	-----	-----	5.7	7,144	12,860	2,240	------	----
Same (composite of samples 83013 to 83017, inclusive).	83018	A	1	4.5	34.6	53.5	7.4	1.4	5.3	73.6	1.3	11.0	3.2	7,328	13,190	------	------	----
			2	-----	36.2	56.0	7.8	1.5	5.0	77.1	1.3	7.3	-----	7,672	13,810	------	------	----
			3	-----	39.3	60.7	-----	1.6	5.4	83.6	1.4	8.0	-----	8,322	14,980	------	------	----
7 miles south of; Norris mine, Yessick bed (face of 4 east heading, clean coal).	83060	A	1	5.2	29.9	46.9	18.0	1.5	-----	-----	-----	-----	2.6	6,228	11,210	2,340	------	49
Same (rib of 3 west heading)	83061	A	1	4.1	31.8	47.9	16.2	1.3	-----	-----	-----	-----	1.6	6,472	11,650	2,310	------	----
Same (face of 11 room, 4 west heading)	83062	A	1	4.0	31.8	48.8	15.4	1.3	-----	-----	-----	-----	1.7	6,578	11.840	2,240	------	----
Same (composite of samples 83060 to 83062, inclusive).	83063	A	1	4.5	31.1	47.8	16.6	1.2	4.9	65.6	1.2	10.5	2.0	6,439	11,590	------	------	----
			2	-----	32.6	50.0	17.4	1.3	4.6	68.7	1.3	6.7	-----	6,744	12,140	------	------	----
			3	-----	39.4	60.6	-----	1.6	5.5	83.1	1.6	8.2	-----	8,161	14,690	------	------	----
Same (rib of 5 east heading, off slope; impurities not excluded).	83064	A	1	4.3	30.3	45.5	19.9	1.6	-----	-----	-----	-----	2.0	6,094	10,970	2,280	------	----
Same (face of 1 room, 1 west heading; impurities not excluded).	83065	A	1	4.0	29.6	45.8	20.6	1.6	-----	-----	-----	-----	1.8	6,100	10,980	2,280	------	----
Same (composite of samples 83064 and 83065)	83066	A	1	4.2	29.9	45.3	20.6	1.5	4.6	62.3	1.2	9.8	1.9	6,117	11,010	------	------	----
			2	-----	31.2	47.3	21.5	1.6	4.3	65.1	1.3	6.2	-----	6,383	11,490	------	------	----
			3	-----	39.7	60.3	-----	2.1	5.5	82.9	1.6	7.9	-----	8,133	14,640	------	------	----

† Laboratory numbers with the prefix W represent samples analyzed in the Washington laboratory of the bureau, all others were analyzed in the Pittsburgh laboratory.

‡ The kind of sample is denoted by letter as follows: A, mine sample collected by engineer of the Bureau of Mines; B, mine sample collected by a geologist of the U. S. Geological Survey.

§ The form of analysis is denoted by number as follows: 1, as received; 2, dried at a temperature of 105° C.; 3, moisture and ash free.

¶ The figures in column 17 denote the temperature (° F.) at which a cone of coal ash will fuse to a spherical lump when heated in a furnace in a reducing atmosphere.

‖ The figures in column 18 represent the Bureau of Mines bulletins in which may be found the description of the section of the bed from which the sample was taken. Figures in column 19 represent the page number of this paper where may be found the mine descriptions of the samples.

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
BIBB COUNTY—Continued																		
Coleanor; Coleanor mine, Thompson bed (face of 37 room, 10 north entry).	20132	A	1	2.7	36.3	52.9	8.1	0.6	-----	-----	-----	-----	1.4	7,367	13,260	2,130	123	----
Same (face of 41 room, 13 north entry)	20133	A	1	2.7	36.5	53.1	7.7	.6	-----	-----	-----	-----	1.5	7,383	13,290	2,060	123	----
Same (face of 14 north entry)	20134	A	1	3.0	36.4	52.7	7.9	.5	-----	-----	-----	-----	1.7	7,350	13,230	2,100	123	----
Same (face of 13 south entry)	20142	A	1	3.3	36.0	52.4	8.3	.5	-----	-----	-----	-----	1.8	7,311	13,160	2,150	123	----
Same (composite of samples 20132 to 20134 and 20142).	20135	A	1	2.9	36.2	52.9	8.0	.6	5.1	75.3	1.1	9.9	1.6	7,344	13,220	------	123	----
			2	-----	37.3	54.5	8.2	.6	5.0	77.5	1.2	7.5	-----	7,561	13,610	------	------	----
			3	-----	40.7	59.3	-----	.6	5.4	84.4	1.3	8.3	-----	8,239	14,830	------	------	----
Garnsey; No. 1 mine, Thompson bed (8 east cross entry).	3018	A	1	3.0	30.9	55.4	10.7	.5	-----	-----	-----	-----	1.6	7,239	13,030	------	22	----
			2	-----	31.9	57.0	11.1	.5	-----	-----	-----	-----	-----	7,467	13,440	------	------	----
Same (face of 9 east heading)	9249	B	1	3.5	31.7	54.9	9.9	.7	5.0	72.7	1.2	10.5	2.2	7,244	13,040	------	22	----
			2	-----	32.8	57.0	10.2	.7	4.8	75.3	1.2	7.8	-----	7,506	13,510	------	------	----
			3	-----	36.6	63.4	-----	.8	5.3	83.9	1.3	8.7	-----	8,361	15,050	------	------	----
Same (face of 9 heading)	9250	B	1	3.5	29.3	53.7	13.5	.6	4.9	70.6	1.1	9.3	2.2	6,911	12,440	------	22	----
			2	-----	30.3	55.7	14.0	.6	4.6	73.2	1.2	6.4	-----	7,167	12,900	------	------	----
			3	-----	35.3	64.7	-----	.7	5.4	85.1	1.3	7.5	-----	8,333	15,000	------	------	----
Same (entrance to 8 west heading)	9251	B	1	3.7	27.4	49.9	19.0	.6	-----	-----	-----	-----	2.5	6,483	11,680	------	22	----
			2	-----	28.4	51.8	19.8	.6	-----	-----	-----	-----	-----	6,733	12,120	------	------	----
Garnsey mine, Thompson bed (4,700 feet southeast of mine mouth).	25431	A	1	3.0	33.2	52.6	11.2	.5	-----	-----	-----	-----	1.5	7,150	12,870	2,370	123	----
Same (8,000 feet southeast of mine mouth)	25432	A	1	2.4	33.1	52.4	12.1	.5	-----	-----	-----	-----	1.1	7,100	12,780	2,400	123	----
Same (5,000 feet southwest of mine mouth)	25433	A	1	2.1	34.5	52.5	10.9	.5	-----	-----	-----	-----	.7	7,267	13,080	2,370	123	----
Same (composite of samples 25431 to 25433, inclusive).	25434	A	1	2.5	34.1	52.1	11.3	.5	5.0	73.1	1.0	9.1	1.1	7,178	12,920	------	123	----
			2	-----	35.0	53.4	11.6	.5	4.9	74.9	1.0	7.1	-----	7,356	13,240	------	------	----
			3	-----	39.6	60.4	-----	.6	5.5	84.7	1.2	8.0	-----	8,322	14,980	------	------	----
Marvel, near; Daley mine, Youngblood bed (100 feet north of main slope, 300 feet from mine mouth).	9666	B	1	4.8	31.4	52.4	11.4	.7	5.3	71.6	1.2	9.8	3.9	7,100	12,780	2,190	22	----
			2	-----	33.0	55.0	12.0	.8	5.0	75.3	1.3	5.6	-----	7,461	13,430	------	------	----
			3	-----	37.5	62.5	-----	.9	5.6	85.5	1.5	6.5	-----	8,472	15,250	------	------	----
Marvel mine, Gholson bed (1 slope, 1 right heading, 200 feet south of mine mouth).	9252	B	1	6.6	28.9	46.9	17.6	1.3	4.9	63.4	1.1	11.7	5.5	6,378	11,480	------	22	----
			2	-----	30.9	50.3	18.8	1.4	4.4	67.9	1.2	6.3	-----	6,828	12,290	------	------	----
			3	-----	38.1	61.9	-----	1.7	5.5	83.6	1.5	7.7	-----	8,417	15,150	------	------	----
Same (2 slope, 18 room, 1 left heading)	10461	A	1	4.0	32.5	56.1	7.4	.9	-----	-----	-----	-----	2.3	------	-------	2,200	22	----
Same (2 slope, face of 2 right heading)	10460	A	1	3.4	32.8	55.1	9.2	.7	-----	-----	-----	-----	2.1	------	-------	2,180	22	----
Same (2 slope, face of 1 room, 2 left heading)	10465	A	1	4.2	32.6	53.3	9.9	1.0	-----	-----	-----	-----	2.7	------	-------	2,310	22	----

Same (composite of samples 10461, 10460 and 10465).	10484	A	1	3.8	33.5	53.7	9.0	.9	5.1	74.2	1.3	9.5	2.4	7,383	13,290	------	22	----
			2	-----	34.8	55.9	9.3	.9	4.9	77.1	1.4	6.4	-----	7,672	13,810	------	------	----
			3	-----	38.4	61.6	-----	1.0	5.4	85.0	1,5	7.1	-----	8,461	15,230	------	------	----
Clark bed (2 slope, 1 left heading)	9253	B	1	4.7	33.2	55.0	7.1	.7	5.0	74.9	1.2	11.1	3.5	7,439	13,390	------	22	----
			2	-----	34.8	57.8	7.4	.7	4.7	78.5	1.2	7.5	-----	7,800	14,040	------	------	----
			3	-----	37.6	62.4	-----	.8	5.1	84.8	1.3	8.0	-----	8,428	15,170	------	------	----
Same (1 slope, face of 2 left heading)	10462	A	1	4.6	31.9	56.4	7.1	1.0	-----	-----	-----	-----	2.8	------	-------	------	22	----
Same (3 left slope, main slope)	10463	A	1	2.8	32.9	53.9	10.4	1.4	-----	-----	-----	-----	1.4	------	-------	2,220	22	----
Same (face of slope, air course)	10464	A	1	2.9	33.8	57.0	6.3	.8	-----	-----	-----	-----	1.2	------	-------	2,180	22	----
Same (composite of samples 10462 to 10464, inclusive).	10485	A	1	3.3	33.6	55.1	8.0	1.0	5.2	74.7	1.3	9.8	1.8	7,500	13,500	------	22	----
			2	-----	34.7	57.0	8.3	1.1	5.0	77.4	1.3	6.9	-----	7,756	13,960	------	------	----
			3	-----	37.9	62.1	-----	1.2	5.4	84.4	1.5	7.5	-----	8,461	15,230	------	------	----
Same (face of 15 left entry, 5,400 feet southeast of mine mouth).	25379	A	1	1.6	36.8	55.3	6.3	.7	----	-----	-----	-----	.4	7,828	14,090	2,180	123	----
Same (face of 8 right entry, 3,000 feet south of mine mouth).	25380	A	1	2.4	36.5	54.9	6.2	.7	----	-----	-----	-----	1.1	7,700	13,860	2,430	123	----
Same (face of 15 room, 8 right entry, 1 panel, 2,000 feet south of mine mouth).	25381	A	1	2.3	36.3	53.8	7.6	.5	----	-----	-----	-----	.9	7,539	13,570	2,500	123	----
Same (face of 9 left entry, 4,000 feet east of mine mouth).	25384	A	1	2.5	35.4	54.0	8.1	.6	----	----	-----	-----	1.0	7,561	13,610	2,180	123	----
Same (composite of samples 25379 to 25381 and 25384).	25382	A	1	2.2	36.7	54.0	7.1	.7	5.2	77.0	1.1	8.9	.9	7,650	13,770	------	123	----
			2	-----	37.5	55.2	7.3	.7	5.1	78.7	1.2	7.0	-----	7,817	14,070	------	------	----
			3	-----	40.4	59.6	-----	.8	5.5	84.9	1.3	7.5	-----	8,433	15,180	------	------	----
Marvel No. 3 mine, Clark bed (face of 6 room, 6 left entry, slope entry).	78859	A	1	2.0	35.6	56.4	6.0	.6	----	-----	-----	-----	.9	7,839	14,110	2,130	------	49
Same (100 feet from face of 8 right entry, slope entry).	78860	A	1	2.2	35.2	56.7	5.9	.7	----	-----	-----	-----	1.1	7,828	14,090	2,090	------	----
Same (face of 1 room, 7 right entry, slope entry)	78861	A	1	2.0	36.5	55.5	6.0	.6	----	-----	-----	-----	.9	7,833	14,100	2,160	------	----
Same (face of main hoisting slope)	78862	A	1	3.1	35.2	56.4	5.3	.7	----	----	-----	-----	2.1	7,789	14,020	2,190	------	----
Same (composite of samples 78859 to 78862, inclusive).	78863	A	1	2.2	35.7	56.2	5.9	.7	5.3	78.5	1.5	8.1	1.2	7,828	14,090	------	------	----
			2	-----	36.5	57.5	6.0	.7	5.1	80.2	1.5	6.5	-----	8,006	14,410	------	------	----
			3	-----	38.9	61.1	-----	.7	5.5	85.4	1.6	6.8	-----	8,522	15,340	------	------	----
Piper; Piper No. 1 mine, Thompson bed (face of 15 east heading 3,500 feet from mine mouth).	9243	B	1	3.1	35.0	55.8	6.1	.4	5.3	76.2	1.2	10.8	1.4	7,533	13,560	------	22	----
			2	-----	36.0	57.7	6.3	.4	5.1	78.7	1.3	8.2	-----	7,778	14,000	------	------	----
			3	-----	38.5	61.5	-----	.5	5.5	84.0	1.4	8.6	-----	8,294	14,930	------	------	----
Same (face of 15 west heading, 3,500 feet from mine mouth).	9244	B	1	2.6	35.7	56.2	5.5	.4	-----	-----	-----	-----	1.2	7,622	13,720	------	22	----
			2	-----	36.6	57.8	5.6	.4	-----	-----	-----	-----	-----	7,833	14,100	------	------	----
Same (face of 20 east entry)	25383	A	1	2.7	36.7	54.5	6.1	.5	----	-----	-----	-----	.8	7,528	13,550	2,130	123	----
Same (face of 21 west air course)	25385	A	1	2.5	36.9	55.0	5.6	.3	-----	-----	-----	-----	.4	7,567	13,620	2,320	123	----
Same (face of 31 room, 5 west entry)	25386	A	1	3.5	36.0	52.9	7.6	.6	-----	-----	-----	-----	1.3	7,267	13,080	2,140	123	----
Same (composite of samples 25383, 25385 and 25386).	25387	A	1	2.9	36.8	53.7	6.6	.5	5.1	75.8	1.1	10.9	.8	7,439	13,390	------	123	----
			2	-----	37.9	55.3	6.8	.5	5.0	78.0	1.1	8.6	-----	7,656	13,780	------	------	----
			3	-----	40.6	59.4	-----	.5	5.3	83.7	1.2	9.3	-----	8,211	14,780	------	------	----
West Blocton, ¾ mile northwest of; Hills Creek mine, Woodstock bed (face of 22 west entry).	83050	A	1	2.6	36.1	57.5	3.8	1.0	-----	-----	-----	-----	1.0	7,889	14,200	2,280	------	50
Same (face of 14 room, 15 east entry)	83051	A	1	3.2	34.9	56.8	5.1	1.2	-----	-----	-----	-----	1.6	7,772	13,990	2,390	------	----
Same (face of 13 east entry)	83052	A	1	2.9	35.1	57.2	4.8	1.1	-----	-----	-----	-----	1.4	7,772	13,990	2,280	------	----
Same (face of 17 heading)	83053	A	1	3.4	36.2	56.9	3.5	1.1	-----	-----	-----	-----	1.6	7,856	14,140	2,280	------	----
Same (face of 14 room, 17 west entry)	83054	A	1	3.3	35.4	58.1	3.2	1.0	-----	-----	-----	-----	1.4	7,889	14,200	2,340	------	----
Same (composite of samples 83050 to 83054, inclusive).	83055	A	1	3.1	35.1	57.7	4.1	1.1	5.3	79.5	1.4	8.6	1.4	7,822	14,080	------	------	----
			2	-----	36.2	59.5	4.3	1.1	5.2	82.0	1.4	6.0	-----	8,067	14,520	------	------	----
			3	-----	37.8	62.2	-----	1.1	5.4	85.7	1.5	6.3	-----	8,428	15,170	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
BLOUNT COUNTY																		
Lehigh; No. 2 mine, Black Creek bed (9 left cross entry, 2,000 feet south of mine mouth).	4090	A	1	4.7	28.7	62.5	4.1	0.8	-----	-----	-----	-----	3.6	------	-------	------	22	----
			2	-----	30.1	65.6	4.3	.9	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (10 right entry, 2,100 feet south of mine mouth).	4091	A	1	2.9	29.1	65.3	2.7	.7	-----	-----	-----	-----	1.9	8,161	14,690	------	22	----
			2	-----	29.9	67.3	2.8	.7	-----	-----	-----	-----	-----	8,411	15,140	------	------	----
Lehigh mine, Black Creek bed (face of 1 right entry, new side, No. 4 opening).	80132	A	1	3.0	32.3	61.0	3.7	1.4	-----	-----	-----	-----	1.8	8,122	14,620	2,390	------	51
Same (face of 2 room, 1 entry, butt—new side, No. 4 opening).	80133	A	1	2.5	32.0	62.6	2.9	.9	-----	-----	-----	-----	1.4	8,067	14,520	2,420	------	----
Same (face of 1 room, 5 left entry, No. 1 opening).	80134	A	1	2.6	33.3	61.3	2.8	.9	-----	-----	-----	-----	1.5	8,078	14,540	2,510	------	----
Same (face of 8 right, No. 1 opening)	80135	A	1	3.7	31.2	59.0	6.1	2.5	-----	-----	-----	-----	2.7	7,650	13,770	2,010	------	----
Same (face of 8 room, 2 right heading, No. 5 opening).	80136	A	1	2.9	32.1	62.8	2.2	.9	-----	-----	-----	-----	1.9	8,083	14,550	2,390	------	----
Same (face of 2 right heading, No. 5 opening)	80137	A	1	2.9	33.9	60.8	2.4	1.2	-----	-----	-----	-----	1.9	8,050	14,490	2,130	------	----
Same (composite of samples 80132 to 80137 inclusive).	80138	A	1	3.0	32.7	61.1	3.2	1.3	5.4	80.5	1.7	7.9	1.9	7,972	14,350	------	------	----
			2	-----	33.7	63.0	3.3	1.3	5.3	83.0	1.8	5.3	-----	8,217	14,790	------	------	----
			3	-----	34.9	65.1	-----	1.4	5.5	85.9	1.9	5.3	-----	8.500	15,300	------	------	----
			2	-----	28.7	57.8	13.5	1.3	-----	-----	-----	-----	-----	7,328	13,190	------	------	----
Nyota, 1 mile south of; Carbon Group mine, Black Creek bed (face of main north entry, No. 13 opening).	83293	A	1	2.9	31.2	63.3	2.6	.6	-----	-----	-----	-----	2.3	8,083	14,550	2,850	------	52
Same (face of 1 right heading, No. 12 opening)	83294	A	1	2.7	30.2	64.6	2.5	.7	-----	-----	-----	-----	2.0	8,111	14,600	2,230	------	----
Same (face of 6 left heading, No. 12 opening)	83295	A	1	2.3	31.5	63.1	3.1	.6	-----	-----	-----	-----	1.7	8,067	14,520	2,450	------	----
Same (face of 2 right heading, Riodell, No. 11 opening)	83296	A	1	2.6	29.9	62.8	4.7	.8	-----	-----	-----	-----	2.0	7,922	14,260	2,340	------	----
Same (face of 2 left heading, Riodell No. 11 opening).	83297	A	1	2.3	31.8	63.4	2.5	.8	-----	-----	-----	-----	1.7	8,122	14,620	2,180	------	----
Same (composite of samples 83293 to 83297, inclusive).	83298	A	1	2.6	30.6	63.8	3.0	.7	5.2	82.0	1.8	7.3	1.9	8,072	14,530	------	------	----
			2	-----	31.4	65.5	3.1	.8	5.0	84.2	1.8	5.1	-----	8,283	14,910	------	------	----
			3	-----	32.3	67.7	-----	.8	5.2	86.8	1.9	5.3	-----	8,544	15,380	------	------	----
½ mile north of; Nyota Group mine, Black Creek bed (face of main north heading, No. 10 opening).	83426	A	1	2.5	30.7	63.5	3.3	.7	-----	-----	-----	-----	1.7	8,022	14,440	2,800	------	52

Same (face of main south heading, No. 10 opening).	83427	A	1	2.5	30.4	64.4	2.7	.8	----	----	----	----	1.5	8.078	14,540	2,800	----	----
Same (face of 3 left heading, No. 7½ opening)	83428	A	1	2.7	30.5	63.0	3.8	.9	----	----	----	----	1.7	7,956	14,320	2,570	----	----
Same (face of 3 right heading, No. 7½ opening)	83429	A	1	2.6	30.6	62.8	4.0	1.3	----	----	----	----	1.7	7,978	14,360	2,390	----	----
Same (face of 11 right heading, No. 8 opening)	83430	A	1	2.8	29.9	63.9	3.4	1.3	----	----	----	----	1.8	7,967	14,340	2,360	----	----
Same (composite of samples 83426 to 83430, inclusive).	83431	A	1	2.6	30.5	63.3	3.6	1.0	5.1	81.4	1.7	7.2	1.7	8,022	14,440	----	----	----
			2	----	31.3	65.0	3.7	1.0	5.0	83.6	1.7	5.0	----	8,239	14,830	----	----	----
			3	----	32.5	67.5	----	1.1	5.1	86.8	1.8	5.2	----	8,556	15,400	----	----	----
Swansea; Fairchild mine, Swansea bed (at face, 450 feet south of mine mouth).	2191	B	1	3.4	27.7	55.8	13.1	1.2	----	----	----	----	2.0	7,078	12,740	----	22	----
DE KALB COUNTY																		
Blanche, 1 mile west of; Underwood prospect pit (10 feet from pit mouth).	18232	B	1	3.5	20.6	64.8	11.1	2.6	----	----	----	----	3.0	----	----	2,280	123	----
			2	----	21.4	67.1	11 5	2.7	----	----	----	----	----	----	----	----	----	----
3 miles northwest of; Yellow Creek mine, Yellow Creek bed (300 feet south of mine mouth, surface coal).	18230	B	1	3.6	19.0	65.9	11.5	1 4	----	----	----	----	2.6	----	----	2,580	123	----
			2	----	19.7	68.4	11.9	1 5	----	----	----	----	----	----	----	----	----	----
Same (coal 20 inches below the surface)	18233	B	1	3.4	18.7	63.4	14.5	1.2	4.3	72.9	1.3	5.8	2.8	7,056	12,700	2,580	123	----
			2	----	19.3	65.6	15.1	1.3	4.1	75.4	1.3	2.8	----	7,305	13,150	----	----	----
			3	----	22.7	77.3	----	1.5	4.8	88.8	1.5	3.4	----	8,600	15,840	----	----	----
Same (coal 12 inches below the surface)	18234	B	1	3.8	19.0	64.4	12.8	1.5	----	----	----	----	2.9	7,211	12,980	2,700	123	----
			2	----	19.7	67.0	13.3	1.6	----	----	----	----	----	7,500	13,500	----	----	----
Fort Payne, 1 mile northeast of; Beeson Gap mine, Yellow Creek bed (200 feet northeast of mine mouth).	18231	B	1	2.8	20.2	60.6	16.4	4.4	----	----	----	----	2.2	----	----	2.210	123	----
			2	----	20.8	62.4	16.8	4.6	----	----	----	----	----	----	----	----	----	----
JEFFERSON COUNTY																		
Adger; Blue Creek No. 3 mine, Blue Creek bed (2,000 feet southeast of mine mouth).	1145	B	1	2.9	26.0	60.9	10.2	.9	----	----	----	----	1.8	----	----	----	22	----
			2	----	26.8	62.7	10.5	1.0	----	----	----	----	----	----	----	----	----	----
Same (face of 7 room, 3 right heading)	1149	B	1	2.9	24.1	53.2	19.8	.7	----	----	----	----	2.2	----	----	----	22	----
			2	----	24.8	54.8	20.4	.7	----	----	----	----	----	----	----	----	----	----
Bessemer, 7 miles southwest of; Virginia mine, Nickel Plate bed (face of 1 north heading, 6,300 feet northwest of mine mouth).	26217	A	1	1.9	24.9	68.5	4.7	.9	----	----	----	----	1.5	8,172	14,710	2,470	193	----
Same (face of 19 right heading, 7,400 feet northwest of mine month).	26218	A	1	2.7	24.5	68.0	4.8	.7	----	----	----	----	2.2	8,067	14,520	2,800	193	----
Same (face of 20 right heading, 6,000 feet northwest of mine mouth).	26219	A	1	2.4	23.9	69.1	4.6	.7	----	----	----	----	1.9	8,133	14,640	2,660	193	----
Same (face of 17 right heading, 6,600 feet north west of mine-mouth).	26220	A	1	2.5	25.5	67.1	4.9	.6	----	----	----	----	2.0	8,089	14,560	2,660	193	----
Same (composite of samples 26217 to 26220, inclusive).	26221	A	1	2.4	24.4	68.4	4.8	.7	4.7	81.7	1.5	6.6	9.1	8,122	14,620	----	193	----
			2	----	25.0	70.1	4.9	.8	4.6	83.7	1.5	4.5	----	8,322	14,980	----	----	----
			3	----	26.3	73.7	----	.8	4.8	88.1	1.6	4.7	----	8,750	15,750	----	----	----
Same (face of main right heading, 6,600 feet northwest of mine mouth).	26222	A	1	.9	24.9	70.0	4.2	.7	----	----	----	----	.4	8,311	14,960	2,520	193	----
			2	----	25.1	70.6	4.3	.7	----	----	----	----	----	8,756	15,760	----	----	----
Same (face of 16 right entry)	33913	A	1	3.2	25.6	67.2	4.0	.9	----	----	----	----	2.8	8,108	14,590	2,530	----	53
Same (face of 3 main right entry)	33914	A	1	2.3	25.0	67.6	5.1	.7	----	----	----	----	2.0	8,083	14,550	2,810	----	----
Same (face of 24 right entry)	33915	A	1	2.3	25.3	67.6	4.8	.8	----	----	----	----	1,9	8,117	14,610	2,420	----	----
Same (face of 1 room, 19 right entry)	33916	A	1	2.5	25.7	66.7	5.1	.9	----	----	----	----	2.2	8,072	14,530	2,490	----	----
Same (face of 25 right entry)	33917	A	1	2.3	24.2	67.8	5.7	.7	----	----	----	----	1.9	8,039	14,470	2,870	----	----
Same (composite of samples 33913 to 33917, inclusive).	33918	A	1	2.6	24.8	67.7	4.9	.8	5.0	82.5	1.6	5.2	2.1	8,078	14,540	----	----	----
			2	----	25.4	69.6	5.0	.8	4.9	84.8	1.6	2.9	----	8,294	14,930	----	----	----
			3	----	26.8	73.2	----	.8	5.1	89.3	1.7	3.1	----	8,733	15,720	----	----	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Bessemer, 8 miles east of; Parkwood mine, Gould bed (right rib, main slope, 25 feet outby face).	83443	A	1	2.9	30.2	59.0	7.9	1.9	-----	-----	-----	-----	2.1	7,533	13,560	2,450	------	54
Same (face of 4 room, slope entry)	83444	A	1	3.6	30.2	59.7	6.5	1.6	-----	-----	-----	-----	2.8	7,600	13,680	2,510	------	
Same (face of 1 left entry)	83445	A	1	2.4	29.4	59.4	8.8	2.0	-----	-----	-----	-----	1.7	7,489	13,480	2,450	------	----
Same (composite of samples 83443 to 83445, inclusive).	83446	A	1	3.0	30.2	58.9	7.9	1.8	5.0	76.2	1.6	7.5	2.2	7,567	13,620	------	------	----
			2	-----	31.1	60.8	8.1	1.9	4.9	78.5	1.7	4.9	-----	7,800	14,040	------	------	----
			3	-----	33.9	66.1	-----	2.1	5.3	85.4	1.8	5.4	-----	8,489	15,280	------	------	----
Birmingham, 8 miles southeast of; Cahaba mine, Harkness bed (face of slope).	80390	A	1	2.2	34.2	58.4	5.2	.9	-----	-----	-----	-----	1.5	7,772	13,990	2,190	------	54
Same (right rib, 7 left entry, 1,000 feet from face)	80391	A	1	1.8	34.2	55.1	8.9	.9	-----	-----	-----	-----	1.2	7,489	13,480	2,300	------	----
Same (face of right heading)	80392	A	1	2.6	34.1	53.5	9.8	1.1	-----	-----	-----	-----	2.1	7,294	13,130	2,410	------	----
Same (composite of samples 80390 to 80392, inclusive).	80393	A	1	2.2	34.4	55.4	8.0	1.0	5.3	76.0	1.6	8.1	1.6	7,539	13,570	------	------	----
			2	-----	35.2	56.6	8.2	1.0	5.1	77.8	1.7	6.2	-----	7,706	13,870	------	------	----
			3	-----	38.3	61.7	-----	1.1	5.6	84.7	1.8	6.8	-----	8,394	15,110	------	------	----
Same (150 feet from face of 7 right heading, impurities included).	80394	A	1	3.9	31.0	54.0	11.1	1.0	-----	-----	-----	-----	3.4	7,061	12,710	2,190	------	----
Same (face of 7 right heading)	80395	A	1	2.3	31.4	55.5	10.8	1.2	-----	-----	-----	-----	2.0	7,239	13,030	2,410	------	----
Same (composite of samples 80394 to 80395)	80396	A	1	3.1	31.5	54.4	11.0	1.1	5.2	72.9	1.6	8.2	2.7	7,161	12,890	------	------	----
			2	-----	32.5	56.2	11.3	1.1	5.0	75.2	1.7	5.7	-----	7,389	13,300	------	------	----
			3	-----	36.6	63.4	-----	1.3	5.6	84.8	1.9	6.4	-----	8,333	15,000	------	------	----
10 miles east of; Overton slope No. 1 mine, Lower Nunnally or Bray bed (face of 1 room, 2 left heading)	84900	A	1	2.4	32.5	56.4	8.7	1.7	-----	-----	-----	-----	1.5	7,511	13,520	2,150	------	55
Same (2 right aircourse, 350 feet inby slope)	84901	A	1	2.6	33.4	58.5	5.5	1.6	-----	-----	-----	-----	1.8	7,778	14,000	2,150	------	----
Same (face of 4 right entry, 50 feet inby slope rib).	84902	A	1	2.2	33.2	58.9	5.7	1.1	-----	-----	-----	-----	1.4	7,817	14,070	2,180	------	----
Same (composite of samples 84900 to 84902, inclusive).	84903	A	1	2.3	33.6	57.4	6.7	1.5	5.3	77.5	1.7	7.3	1.5	7,700	13,860	------	------	----
			2	-----	34.4	58.7	6.9	1.5	5.1	79.3	1.7	5.5	-----	7,883	14,190	------	------	----
			3	-----	37.0	63.0	-----	1.6	5.5	85.2	1.9	5.8	-----	8,461	15,230	------	------	----

Overton slope No. 2 mine, Upper Nunnally or Glass bed (rib of 3 left entry, 50 feet inby slope).	84896	A	1	1.7	31.7	54.1	12.5	.7	-----	-----	-----	-----	.9	7,239	13,030	2,450	------	55
Same (face of 4 right entry, 75 feet from slope)	84897	A	1	2.5	30.7	54.2	12.6	.6	-----	-----	-----	-----	1.8	7,183	12,930	2,420	------	----
Same (face of slope, 100 feet below 4 right entry)	84898	A	1	2.5	31.0	54.6	11.9	.7	-----	-----	-----	-----	1.8	7,239	13,030	2,450	------	----
Same (composite of samples 84896 to 84898, inclusive).	84899	A	1	2.2	31.1	54.3	12.4	.7	5.0	73.3	1.6	7.0	1.5	7,211	12,980	------	------	----
			2	-----	31.8	55.5	12.7	.7	4.8	75.0	1.6	5.2	-----	7,378	13,280	------	------	----
			3	-----	36.4	63.6	-----	.8	5.5	85.9	1.8	6.0	-----	8,450	15,210	------	------	----
Blossburg, ½ mile east of; Pinkney No. 1 mine, Nickel Plate bed (face of 12 room, 1 left entry, No. 4 opening).	83438	A	1	2.4	30.4	58.8	8.4	2.5	-----	-----	-----	-----	1.6	7,556	13,600	2,390	------	56
Same (face of 30 room, No. 4 opening)	83439	A	1	2.8	28.5	57.4	11.3	1.9	-----	-----	-----	-----	2.1	7,272	13,090	2,450	------	----
Same (face of 3 right entry, No. 1 opening)	83440	A	1	2.2	30.5	58.7	8.6	2.8	-----	-----	-----	-----	1.6	7,578	13,640	2,390	------	----
Same (face of 2 right entry, No. 1 opening)	83441	A	1	2.1	30.3	59.4	8.2	2.1	-----	-----	-----	-----	1.5	7,628	13,730	2,450	------	----
Same (composite of samples 83438 to 83441, inclusive).	83442	A	1	2.4	29.3	59.2	9.1	2.3	4.9	75.5	1.5	6.7	1.7	7,506	13,510	------	------	----
			2	-----	30.0	60.6	9.4	2.3	4.8	77.4	1.5	4.6	-----	7,683	13,830	------	------	----
			3	-----	33.1	66.9	-----	2.6	5.3	85.3	1.7	5.1	-----	8,478	15,260	------	------	----
1 mile south of; Pinkney No. 2 mine, Nickel Plate bed (face of 1 left entry).	83432	A	1	2.1	30.2	58.8	8.9	2.3	-----	-----	-----	-----	1.3	7,550	13,590	2,370	------	56
Same (face of 1 room, 1 left entry)	83433	A	1	2.1	29.6	59.4	8.9	1.7	-----	-----	-----	-----	1.4	7,600	13,680	2,390	------	----
Same (left rib, 8 right entry, 200 feet outby face)	83434	A	1	2.8	28.5	57.8	10.9	1.8	-----	-----	-----	-----	2.1	7,356	13,240	2,390	------	----
Same (face of 7 right entry)	83435	A	1	2.5	29.3	59.9	8.3	2.5	-----	-----	-----	-----	1.8	7,600	13,680	2,340	------	----
Same (face of 14 room, 6 right entry)	83436	A	1	2.1	28.7	59.7	9.5	2.3	-----	-----	-----	-----	1.5	7,522	13,540	2,390	------	----
Same (composite of samples 83432 to 83436, inclusive).	83437	A	1	2.3	29.1	59.2	9.4	2.1	4.9	75.6	1.3	6.7	1.6	7,539	13,570	------	------	----
			2	-----	29.8	60.6	9.6	2.2	4.8	77.4	1.4	4.6	-----	7,717	13,890	------	------	----
			3	-----	33.0	67.0	-----	2.4	5.3	85.6	1.5	5.2	-----	8,539	15,370	------	------	----
Bradford, 1 mile north of Dixiana; Bradford mine, Black Creek bed (face of 3 right entry)	82091	A	1	3.1	32.8	61.4	2.7	.7	-----	-----	-----	-----	2.4	8,128	14,630	2,510	------	57
Same (face of 11 right entry)	82092	A	1	2.6	32.3	61.5	3.6	.7	-----	----	-----	-----	1.9	8,044	14,480	2,680	------	----
Same (face of slope)	82093	A	1	2.3	33.3	61.7	2.7	.9	-----	-----	-----	-----	1.5	8,172	14,710	2,510	------	----
Same (face of 7 left entry)	82094	A	1	4.3	32.0	61.1	2.6	.9	-----	-----	-----	-----	3.5	8,022	14,440	2,510	------	----
Same (face of 4 left entry)	82095	A	1	2.8	31.9	60.9	4.4	.8	-----	-----	-----	-----	2.1	7,917	14,250	2,450	------	----
Same (composite of samples 82091 to 82095, inclusive).	82096	A	1	3.0	31.8	62.1	3.1	.8	5.4	81.6	1.8	7.3	2.3	8,056	14,500	------	------	----
			2	-----	32.8	64.0	4.2	.8	5.3	84.1	1.9	4.7	-----	8,306	14,950	------	------	----
			3	-----	39.9	66.1	-----	.8	5.4	86.9	1.9	5.0	-----	8,578	15,440	------	------	----
Cardiff, 1 mile west of; No. 16 mine, Nickel Plate bed (lower 15-inch bench).	1931	B	1	1.8	28.5	54.1	15.6	4.1	-----	-----	-----	-----	1.0	------	-------	------	------	----
			2	-----	29.0	55.1	15.9	4.1	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (upper 17¾-inch bench)	1920	B	1	2.9	19.1	65.2	2.8	1.0	-----	-----	-----	-----	1.3	------	-------	------	22	----
			2	-----	29.9	67.2	2.9	1.0	----	-----	-----	-----	-----	------	-------	------	------	----
Pratt bed (face of 3 heading, 4 entry)	1917	B	1	1.8	29.3	57.5	11.4	4.2	----	-----	-----	-----	.9	------	-------	------	22	----
			2	-----	29.8	58.6	11.6	4.3	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (face of 5 right heading, 3 entry)	1918	B	1	2.9	29.6	56.8	10.7	2.0	-----	-----	-----	-----	1.6	7,478	13,460	------	22	----
			2	-----	30.4	58.6	11.0	2.1	-----	-----	-----	-----	-----	7,700	13,860	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Clift; Clift mine, Pratt bed (face of main entry, No. 3 cut, 800 feet from mine mouth).	1754	B	1	2.7	29.9	59.0	8.4	1.7	-----	-----	-----	-----	1.6	------	-------	------	22	----
			2	-----	30.8	60.6	8.6	1.8	-----	-----	-----	-----	-----	------	-------	------	------	----
Docena; Docena mine, Pratt bed (face of southeast slope)	W46918	A	1	1.9	30.5	63.5	4.1	1.0	-----	-----	-----	-----	-----	8,106	14,590	------	123	----
Same (face of 20 room, 5 right entry, main south slope).	W46919	A	1	1.9	31.5	62.8	3.8	1.4	-----	-----	-----	-----	-----	8,133	14,640	------	123	----
Same (face of main south slope, air course)	W46920	A	1	1.7	30.8	62.5	5.0	1.5	-----	-----	-----	-----	-----	8,033	14,460	------	123	----
Same (face of 52 room, 2 left entry, southeast slope)	W46921	A	1	1.9	31.6	61.6	4.9	1.4	-----	-----	-----	-----	-----	8,017	14,430	------	123	----
Same (face of 7 left entry, main south slope)	W46922	A	1	.8	31.5	62.9	4.8	1.4	-----	-----	-----	-----	-----	8,167	14,700	------	123	----
Same (composite of samples W46918 to W46921, inclusive).	19645	A	1	1.7	30.4	63.3	4.6	1.4	5.1	81.5	1.6	5.8	-----	8,117	14,610	------	123	----
			2	-----	30.9	64.4	4.7	1.4	5.0	82.9	1.6	4.4	-----	8,250	14,850	------	------	----
			3	-----	32.5	67.5	-----	1.5	5.3	87.0	1.7	4.5	-----	8,656	15,580	------	------	----
Same (face of 12 right entry, southwest slope)	83795	A	1	2.2	29.7	63.4	4.7	1.2	-----	-----	-----	-----	1.9	8,006	14,410	2,450	------	57
Same (face of back slope, 5 right entry)	83796	A	1	2.2	29.3	61.5	7.0	1.4	-----	-----	-----	-----	1.8	7,785	14,010	2,450	------	----
Same (face of main south entry)	83797	A	1	2.0	31.7	62.6	3.7	1.2	-----	-----	-----	-----	1.7	8,099	14,580	2,390	------	----
Same (face of 9 west entry, old southwest slope)	83798	A	1	2.4	29.5	64.1	4.0	1.1	-----	-----	-----	-----	1.8	8,080	14,540	2,390	------	----
Same (face of 13 left entry)	83799	A	1	2.4	30.7	62.1	4.8	1.3	-----	-----	-----	-----	1.7	8.033	14,460	2,420	------	----
Same (face of new southwest slope)	83800	A	1	2.6	29.1	62.9	5.4	1.6	-----	-----	-----	-----	2.1	7,924	14,260	2,370	------	----
Same (composite of samples 83795 to 83800, inclusive).	83801	A	1	2.3	30.2	62.6	4.9	1.3	5.1	81.3	1.6	5.8	1.8	8,003	14,410	------	------	----
			2	-----	30.9	64.1	5.0	1.3	4.9	83.2	1.6	4.0	-----	8,191	14,750	------	------	----
			3	-----	32.5	67.5	-----	1.4	5.2	87.6	1.7	4.1	-----	8,622	15,530	------	------	----
Same (face of 8 left entry, section 14)	84066	A	1	2.3	28.6	60.6	8.5	1.6	-----	-----	-----	-----	2.0	7,646	13,760	2,340	------	57
Same (face of 1 right entry, main north entry, section 13).	84067	A	1	2.2	29.7	59.9	8.2	1.9	-----	-----	-----	-----	1.9	7,725	13,900	2,340	------	----
Same (face of 2 northeast entry, section 11)	84068	A	1	2.0	28.9	62.7	6.4	2.0	-----	-----	-----	-----	1.6	7,877	14,180	2,280	------	----
Same (face of 1 northeast slope, section 11)	84069	A	1	1.9	29.6	62.6	5.9	2.0	-----	-----	-----	-----	1.5	7,943	14,290	2,280	------	----
Same (composite of samples 84066 to 84069, inclusive).	84070	A	1	2.2	29.0	61.4	7.4	1.9	5.0	78.6	1.6	5.5	1.8	7,767	13,980	------	------	----
			2	-----	29.7	62.7	7.6	1.9	4.9	80.4	1.6	3.6	-----	7,942	14,290	------	------	----
			3	-----	32.1	67.9	-----	2.1	5.3	87.0	1.7	3.9	-----	8,595	15,470	------	------	----

Dolomite; Dolomite No. 1 mine, Pratt bed (face of 1 room, 1 left entry, 11 cross entry)	80189	A	1	2.5	27.2	65.0	5.3	.7	-----	-----	-----	-----	2.0	7,944	14,300	2,740	------	58
Same (face of 12 room, 14 left entry)	80190	A	1	2.6	26.4	63.8	7.2	.5	-----	-----	-----	-----	2.0	7,789	14,020	2,850	------	----
Same (face of 8 room, 16 left entry)	80191	A	1	3.1	26.4	64.8	5.7	.6	-----	-----	-----	-----	2.5	7,883	14,190	2,560	------	----
Same (face of 10 room, 18 left entry)	80192	A	1	2.2	27.0	63.9	6.9	.6	-----	-----	-----	-----	1.6	7,867	14,160	2,650	------	----
Same (composite of samples 80189 to 80192, inclusive).	80193	A	1	2.6	26.9	64.5	6.0	.6	5.0	79.5	1.7	7.2	2.0	7,883	14,190	------	------	----
			2	-----	27.6	66.2	6.2	.7	4.9	81.7	1.8	4.7	-----	8,094	14,570	------	------	----
			3	-----	29.4	70.6	-----	.7	5.2	87.0	1.9	5.2	-----	8,627	15,530	------	------	----
Dolomite No. 2 mine, Pratt bed (77-inch cut)	3579	B	1	3.2	25.4	67.7	3.7	.6	5.1	82.3	1.4	6.9	2.0	8,122	14,620	------	22	----
			2	-----	26.2	70.0	3.8	.6	4.9	85.0	1.4	4.3	-----	8,383	15,090	------	------	----
			3	-----	27.3	72.7	-----	.6	5.1	88.3	1.5	4.5	-----	8,717	15,690	------	------	----
Same (68-inch cut)	3580	B	1	3.1	26.9	66.2	3.8	.6	5.3	82.0	1.5	6.8	2.0	8,156	14,680	------	22	----
			2	-----	27.7	68.4	3.9	.6	5.1	84.7	1.5	4.2	-----	8,417	15,150	------	------	----
			3	-----	28.8	71.2	-----	.6	5.3	88.1	1.6	4.4	-----	8,756	15,760	------	------	----
Same (face of 30 room, 31 west heading, 2 miles southeast of mine mouth).	4292	A	1	3.2	27.0	66.0	3.8	.6	-----	-----	-----	-----	2.3	------	------	------	22	----
			2	-----	27.9	68.1	4.0	.6	-----	-----	-----	-----	-----	------	------	------	------	----
Same (face of 29 east heading, 2 miles east of mine mouth).	4293	A	1	2.8	26.5	67.2	3.5	.6	-----	-----	-----	-----	2.2	8,133	14,640	------	22	----
			2	-----	27.3	69.1	3.6	.6	-----	-----	-----	-----	-----	8,372	15,070	------	------	----
Dolomite No. 3 mine, Pratt bed (face of 4 right entry, 49 west entry).	80183	A	1	3.6	27.3	63.2	5.9	1.8	-----	-----	-----	-----	3.1	7,828	14,090	2,280	------	59
Same (face of 8 room, 1 left entry, 50 east entry)	80184	A	1	2.5	27.9	63.6	6.0	1.7	-----	-----	-----	-----	2.0	7,894	14,210	2,340	------	----
Same (face of 49 west entry)	80185	A	1	2.4	27.7	63.9	6.0	1.9	-----	-----	-----	-----	1.9	7,933	14,280	2,340	------	----
Same (face of 4 left entry, 50 east entry)	80186	A	1	3.8	28.3	60.7	7.2	1.5	-----	-----	-----	-----	3.3	7,689	13,840	2,390	------	----
Same (face of 7 left entry, 50 east entry)	80187	A	1	2.3	28.9	60.8	8.0	1.7	-----	-----	-----	-----	1.9	7,761	13,970	2,440	------	----
Same (composite of samples 80183 to 80187, inclusive).	80188	A	1	3.0	28.1	62.4	6.5	1.7	5.3	79.1	1.4	6.0	2.4	7,822	14,080	------	------	----
			2	-----	29.0	64.3	6.7	1.8	5.1	81.6	1.4	3.4	-----	8,061	14,510	------	------	----
			3	-----	31.1	68.9	-----	1.9	5.5	87.4	1.5	3.7	-----	8,639	15,550	------	------	----
Edgewater; Edgewater mine, Pratt bed (upper level) (face of 15 east entry, 2 north entry).	83817	A	1	3.2	28.1	64.2	4.5	1.4	-----	-----	-----	-----	2.7	7,968	14,340	2,390	------	60
Same (face of main west entry)	83818	A	1	2.8	28.5	63.4	5.3	1.8	-----	-----	-----	-----	2.4	7,944	14,300	2,390	------	----
Same (face of 6 west entry, 3 south entry)	83819	A	1	3.0	28.2	63.6	5.2	1.5	-----	-----	-----	-----	2.6	7,917	14,250	2,390	------	----
Same (face of 10 east entry, 2 north entry)	83820	A	1	2.1	28.5	65.1	4.3	1.6	-----	-----	-----	-----	1.7	8,066	14,520	2,340	------	----
Same (face of 24 room, 8 west entry, 2 north entry).	83821	A	1	1.9	29.5	60.7	7.9	2.7	-----	-----	-----	-----	1.6	7,741	13,930	2,340	------	----
Same (face of 14 west entry, 2 south entry)	83822	A	1	3.0	29.8	60.1	7.1	1.5	-----	-----	-----	-----	2.7	7,757	13,960	2,390	------	----
Same (composite of samples 83817 to 83822, inclusive).	83865	A	1	2.8	28.3	63.0	5.9	1.7	5.1	79.9	1.6	5.8	2.3	7,917	14,250	------	------	----
			2	-----	29.1	64.8	6.1	1.7	4.9	82.2	1.6	3.5	-----	8,144	14,660	------	------	----
			3	-----	31.0	69.0	-----	1.8	5.2	87.5	1.7	3.8	-----	8,672	15,610	------	------	----
Pratt bed (lower level) (face of 2 north heading)	83879	A	1	3.2	27.3	62.3	7.2	1.7	-----	-----	-----	-----	2.8	7,738	13,930	2,310	------	60
Same (face of 24 east entry)	83880	A	1	2.6	27.5	62.9	7.0	1.7	-----	-----	-----	-----	2.2	7,748	13,950	2,390	------	----
Same (face of 5 north entry)	83881	A	1	2.6	28.6	62.2	6.6	1.4	-----	-----	-----	-----	2.2	7,824	14,080	2,390	------	----
Same (face of 8 north entry)	83882	A	1	2.5	28.9	62.5	6.1	1.5	-----	-----	-----	-----	2.0	7,906	14,230	2,390	------	----
Same (face of 6 south entry)	83883	A	1	2.3	28.4	62.1	7.2	1.5	-----	-----	-----	-----	1.9	7,805	14,050	2,390	------	----
Same (face of 27 room, 1 south entry)	83884	A	1	2.1	29.4	60.2	8.3	1.1	-----	-----	-----	-----	1.7	7,744	13,940	2,450	------	----
Same (composite of samples 83879 to 83884, inclusive).	83885	A	1	2.5	28.1	62.5	6.9	1.4	5.0	79.1	1.7	5.9	2.1	7,817	14,070	------	------	----
			2	-----	28.8	64.1	7.1	1.4	4.8	81.1	1.7	3.9	-----	8,017	14,430	------	------	----
			3	-----	31.0	69.0	-----	1.5	5.2	87.3	1.8	4.2	-----	8,628	15,530	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate						Calorific value			Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Air-drying loss	Calories	B. t. u.	Softening temperature (° F.)	Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Ensley; Bayview mine, Pratt bed (face of 3 room, 3 west-north entry).	83688	A	1	2.0	28.1	62.1	7.8	2.3	-----	-----	-----	-----	1.6	7,739	13,930	2,230	-----	61
Same (face of southwest heading)	83689	A	1	2.1	26.9	64.5	6.5	1.8	-----	-----	-----	-----	1.7	7,911	14,240	2,240	-----	----
Same (face of 19 west heading)	83690	A	1	2.0	28.0	64.4	5.6	1.4	-----	-----	-----	-----	1.6	7,978	14,360	2,280	-----	----
Same (face of 15 room, 11 south entry)	83691	A	1	2.0	26.5	59.0	12.5	2.3	-----	-----	-----	-----	1.5	7,322	13,180	2,510	-----	----
Same (face of 22 room, 3 south entry)	83692	A	1	1.9	27.9	61.7	8.5	1.9	-----	-----	-----	-----	1.4	7,739	13,930	2,480	-----	----
Same (face of 3 south entry)	83693	A	1	1.9	26.5	65.0	6.6	1.9	-----	-----	-----	-----	1.5	7,917	14,250	2,450	-----	----
Same (face of 5 room, 5 south entry)	83829	A	1	2.8	26.7	65.7	4.8	1.9	-----	-----	-----	-----	2.3	7,978	14,360	2,220	-----	----
Same (composite of samples 83688 to 83693, inclusive, and 83829).	83830	A	1	2.2	27.5	62.8	7.5	1.9	4.9	79.0	1.6	5.1	1.7	7,777	14,000	-----	-----	----
			2	-----	28.1	64.2	7.7	1.9	4.8	80.7	1.6	3.3	-----	7,952	14,320	-----	-----	----
			3	-----	30.4	69.6	-----	2.1	5.2	87.4	1.7	3.6	-----	8,615	15,510	-----	-----	----
Birmingham P. O., Pratt No. 4 mine, Pratt bed (face of 10 room, A west entry).	W46826	A	1	.7	32.8	60.9	5.6	1.6	-----	-----	-----	-----	-----	8,078	14,540	-----	123	----
Same (face of 8 room, 10 cross entry, back slope)	W46827	A	1	2.8	31.9	60.1	5.2	.7	-----	-----	-----	-----	-----	7,861	14,150	-----	123	----
Same (face of 17 room, 35 west entry)	W46828	A	1	1.4	32.2	59.8	6.6	1.9	-----	-----	-----	-----	-----	7,911	14,240	-----	123	----
Same (face of 1 room, 13 cross entry, back slope)	W46831	A	1	1.8	33.5	56.9	7.8	.9	-----	-----	-----	-----	-----	7,706	13,870	-----	123	----
Same (face of 1 room, 42 east cross entry)	W46832	A	1	1.9	30.9	61.0	6.2	2.0	-----	-----	-----	-----	-----	7,922	14,260	-----	123	----
Same (composite of samples W46826, W46827, W46831, and W46832).	19641	A	1	1.7	31.3	60.7	6.3	1.5	5.1	79.8	1.6	5.7	-----	7,939	14,290	-----	123	----
			2	-----	31.8	61.8	6.4	1.5	5.0	81.1	1.6	4.4	-----	8,078	14,540	-----	-----	----
			3	-----	34.0	66.0	-----	1.6	5.4	86.7	1.7	4.6	-----	7,628	15,530	-----	-----	----
Henryellen, 2 miles southwest of; No. 6 mine, Mammoth bed.	3460	B	1	2.5	33.8	56.9	6.8	.5	-----	-----	-----	-----	1.0	-----	-----	-----	22	----
			2	-----	34.7	58.3	7.0	.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	----
Johns, ⅞ mile from; Ajax mine, Blue Creek bed (face of 2 left heading).	78762	A	1	3.3	22.8	64.2	9.7	.6	-----	-----	-----	-----	2.8	7,550	13,590	2,980	-----	62
Same (face of 2 left heading, east side)	78763	A	1	3.9	23.2	62.6	10.3	.8	-----	-----	-----	-----	3.4	7,417	13,350	2,960	-----	----
Same (face of 1 left east heading)	78764	A	1	2.4	24.8	61.1	11.7	.8	-----	-----	-----	-----	1.7	7,411	13,340	2,620	-----	----
Same (face of 1 left air course)	78765	A	1	2.6	24.2	64.4	8.8	.9	-----	-----	-----	-----	2.1	7,661	13,790	2,950	-----	----
Same (composite of samples 78762 to 78765, inclusive).	78766	A	1	3.1	23.4	63.6	9.9	.8	4.9	76.7	1.5	6.2	2.5	7,517	13,530	-----	-----	----
			2	-----	24.1	65.6	10.3	.8	4.7	79.1	1.5	3.6	-----	7,756	13,960	-----	-----	----
			3	-----	26.9	73.1	-----	.9	5.3	88.2	1.7	3.9	-----	8,644	15,560	-----	-----	----
Johns mine, Blue Creek bed (30 room, 3 east heading, 1,600 feet east of mine mouth).	1148	B	1	3.4	25,8	61.1	8.7	.9	-----	-----	-----	-----	2.8	7,583	13,650	-----	22	----
			2	-----	34.7	58.3	7.0	1.0	-----	-----	-----	-----	-----	7,844	14,120	-----	-----	----
Same (12 room, 11 east heading, 5,800 feet south of mine mouth).	1146	B	1	2.6	26.5	59.6	11.3	1.0	-----	-----	-----	-----	1.7	-----	-----	-----	22	----
			2	-----	27.2	61.2	11.6	1.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

Kimberly; Kimberly No. 2 mine, Black Creek bed (face of 1 west entry, main south entry).	83581	A	1	2.9	32.6	61.5	3.0	.7	-----	-----	-----	-----	2.1	8,044	14,480	2,240	------	62
Same (face of main south entry)	83582	A	1	1.9	32.3	62.7	3.1	.6	-----	-----	-----	-----	1.2	8,117	14,610	2,340	------	----
Same (face of main east entry)	83583	A	1	2.8	34.0	55.2	8.0	.8	-----	-----	-----	-----	2.1	7,528	13,550	2,340	------	----
Same (face of main north entry)	83584	A	1	4.0	29.8	60.2	6.0	.9	-----	-----	-----	-----	3.3	7,656	13,780	2,390	------	----
Same (face of 2 northeast heading)	83585	A	1	3.8	31.3	62.5	2.4	.6	-----	-----	-----	-----	3.1	7,983	14,370	2,390	------	----
Same (composite of samples 83581 to 83585, inclusive).	83586	A	1	3.1	31.8	60.7	4.4	.7	5.1	79.9	1.7	8.2	2.3	7,872	14,170	------	------	----
			2	-----	32.9	62.5	4.6	.7	5.0	82.5	1.7	5.5	-----	8,128	14,630	------	------	----
			3	-----	34.4	65.6	-----	.7	5.2	86.4	1.8	5.9	-----	8,517	15,330	------	------	----
¾ mile north of; Kimberly No. 3 mine, Jefferson bed (face of 2 northeast heading).	83575	A	1	2.7	30.3	56.9	10.1	3.2	-----	-----	-----	-----	2.0	7,356	13,240	2,200	------	63
Same (face of 4 northeast heading)	83576	A	1	2.4	29.6	59.8	8.2	3.5	-----	-----	-----	-----	1.7	7,550	13,590	2,180	------	----
Same (near face of 4 southeast heading)	83577	A	1	2.1	29.9	58.7	9.3	3.4	-----	-----	-----	-----	1.3	7,422	13,360	2,200	------	----
Same (face of 3 southeast heading)	83578	A	1	2.3	31.7	57.9	8.1	2.8	-----	-----	-----	-----	1.5	7,561	13,610	2,180	------	----
Same (face of 2 southeast heading)	83579	A	1	2.2	29.8	59.0	9.0	2.3	-----	-----	-----	-----	1.4	7,472	13,450	2,220	------	----
Same (composite of samples 83575 to 83579, inclusive).	83580	A	1	2.3	30.3	58.6	8.8	3.0	4.9	75.3	1.6	6.4	1.6	7,467	13,440	------	------	----
			2	-----	31.0	60.0	9.0	3.1	4.8	77.1	1.7	4.3	-----	7,644	13,760	------	------	----
			3	-----	34.1	65.9	-----	3.4	5.3	84.7	1.8	4.8	-----	8,394	15.110	------	------	----
Labuco, 2 miles west of Praco; Labuco mine, Mary Lee bed (face of 25 room, 2 right entry).	78297	A	1	2.3	27.9	58.8	11.0	1.7	-----	-----	-----	-----	1.9	7,306	13,150	2,680	------	64
Same (face of 19 room, 4 left entry)	78298	A	1	3.2	26.9	59.8	10.1	1.3	-----	-----	-----	-----	2.2	7,333	13.200	2,470	------	----
Same (face of 16 room, 6 left entry)	78299	A	1	2.5	27.8	56.6	13.1	1.5	-----	-----	-----	-----	1.8	7,194	12,950	2,660	------	----
Same (face of main slope entry)	78300	A	1	3.0	27.4	56.5	13.1	1.0	-----	-----	-----	-----	2.3	7,139	12,850	2,680	------	----
Same (face of 16 room, 6 right entry)	78301	A	1	2.6	27.7	56.8	12.9	1.6	-----	-----	-----	-----	1.7	7,167	12,900	2,520	------	----
Same (composite of samples 78297 to 78301, inclusive).	78302	A	1	2.9	27.0	58.0	12.1	1.3	4.8	73.7	1.6	6.5	2.0	7,250	13,050	------	------	----
			2	-----	27.9	59.6	12.5	1.3	4.6	75.9	1.7	4.0	-----	7,467	13,440	------	------	----
			3	-----	31.8	68.2	-----	1.5	5.3	86.8	1.9	4.5	-----	8,533	15,360	------	------	----
Lewisburg; Mary Lee No. 1 mine, Mary Lee bed (lower) bench).	2431	B	1	2.2	27.1	55.4	15.3	.9	-----	-----	-----	-----	1.3	------	-------	------	22	----
			2	-----	27.7	56.6	15.7	1.0	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (upper bench)	2432	B	1	2.5	27.3	57.2	13.0	1.4	-----	-----	-----	-----	1.2	------	-------	------	22	----
			2	-----	28.0	58.6	13.4	1.4	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (face of 18 east entry)	78767	A	1	2.6	28.3	56.7	12.4	.8	-----	-----	-----	-----	1.8	7,256	13,060	2,790	------	64
Same (face of 17 east entry, cross face)	78768	A	1	3.5	28.1	57.1	11.3	.8	-----	-----	-----	-----	2.7	7,289	13,120	2,740	------	----
Same (face of 13 west cross entry, slope entry)	78769	A	1	2.9	28.8	58.3	10.0	.7	-----	-----	-----	-----	2.3	7,428	13,370	2,740	------	----
Same (composite of samples 78767 to 78769, inclusive).	78770	A	1	3.1	28.6	57.2	11.1	.8	5.0	74.0	1.6	7.5	2.2	7,328	13,190	------	------	----
			2	-----	29.5	59.0	11.5	.8	4.8	76.4	1.6	4.9	-----	7,567	13,620	------	------	----
			3	-----	33.4	66.6	-----	.9	5.4	86.3	1.8	5.6	-----	8,544	15,380	------	------	----
Same (face of A Entry)	79585	A	1	3.1	27.7	58.6	10.6	.6	-----	-----	-----	-----	2.2	7,406	13,330	2,800	------	64
			2	-----	28.6	60.4	11.0	.7	-----	-----	-----	-----	-----	7,644	13,760	------	------	----
Littleton; Banner mine, Mary Lee bed (rib near mouth, 4 room, 5 right entry, 2,000 feet east of No. 1 shaft).	12083	A	1	2.5	26.7	59.4	11.4	.9	-----	-----	-----	-----	1.4	------	-------	2,860	85	----
Same (rib near mouth of 2 room, 8 left entry, 2,400 feet east of No. 1 shaft).	12084	A	1	2.3	26.7	59.8	11.2	.7	-----	-----	-----	-----	1.3	------	-------	2,710	85	----
Same (right rib of main slope, at mouth of 9 left entry, 2,700 feet east of No. 1 shaft).	12085	A	1	2.4	26.9	60.0	10.7	.9	-----	-----	-----	-----	1.5	------	-------	2,750	85	----
Same (composite of samples 12083 to 12085, inclusive).	12086	A	1	2.5	26.9	59.5	11.1	.8	4.8	74.4	1.6	7.3	1.4	7,383	13.290	------	85	----
			2	-----	27.6	61.1	11.3	.8	4.6	76.4	1.6	5.3	-----	7,572	13.630	------	------	----
			3	-----	31.2	68.8	-----	.9	5.2	86.2	1.8	5.9	-----	8,544	15.380	------	------	----
Thomas mine, Mary Lee bed (10 left cross heading, whole bed).	1930	B	1	3.4	26.9	59.0	10.7	.7	-----	-----	-----	-----	2.2	7,367	13,260	------	22	----
			2	-----	27.9	61.0	11.1	.7	-----	-----	-----	-----	-----	7,628	13,730	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Lovick, near; Rutliffe mine, Gould bed	3499	B	1	2.0	30.7	58.9	8.4	1.1	4.9	76.0	1.7	7.9	0.8	7,561	13,610	------	22	----
			2	-----	31.2	60.2	8.6	1.1	4.8	77.6	1.7	6.2	-----	7,717	13,890	------	------	----
			3	-----	34.2	65.8	-----	1.2	5.3	84.8	1.9	6.8	-----	8,439	15,190	------	------	----
Majestic; Majestic mine, Black Creek bed (face of 4 room, 1 left cross entry, 4 right north entry).	32070	A	1	1.9	30.2	62.7	5.2	.6	-----	-----	-----	-----	1.0	8,011	14,420	2,730	193	----
Same (face of main north entry, 5 left entry)	32071	A	1	2.6	30.5	62.8	4.1	.6	-----	-----	-----	-----	1.7	8.033	14,460	2,680	193	----
Same (face of 4 right south air course)	32072	A	1	2.9	31.2	61.8	4.1	.6	-----	-----	-----	-----	2.0	7,989	14,380	2,540	193	----
Same (room neck, 30 feet outby face, 4 left south entry).	32073	A	1	1.9	31.3	64.6	2.2	.6	-----	-----	-----	-----	.9	8,250	14,850	2,520	193	----
Same (composite of samples 32070 to 32073, inclusive).	32074	A	1	2.4	30.3	63.5	3.8	.6	5.2	82.2	1.7	6.5	1.4	8,061	14,510	------	193	----
			2	-----	31.1	65.0	3.9	.6	5.1	84.2	1.7	4.5	-----	8,256	14,860	------	------	----
			3	-----	32.3	67.7	-----	.6	5.3	87.6	1.8	4.7	-----	8,589	15,460	------	------	----
Mineral Springs; Kosmo mine, Nickel Plate bed (face of 3 room).	1768	B	1	2.3	26.9	55.7	15.1	2.5	-----	-----	-----	-----	1.1	------	-------	------	22	----
			2	-----	27.5	57.1	15.4	2.5	-----	-----	-----	-----	-----	------	-------	------	------	----
Morris, 4 miles east of; Indio mine, Jefferson bed (face of 7 room, 5 left south entry, 2,000 feet southeast of shaft).	16683	A	1	2.0	31.0	59.0	8.0	3.3	-----	-----	-----	-----	1.1	7,706	13,870	2,060	85	----
Same (face of 4 room, 7 right north entry, 2,500 feet northeast of shaft).	16684	A	1	2.2	31.0	59.9	6.9	2.6	-----	-----	-----	-----	1.4	7,828	14,090	2,200	85	----
Same (entrance to 4 room, 6 right south entry)	16685	A	1	2.0	30.9	59.3	7.8	2.5	-----	-----	-----	-----	1.1	7,739	13,930	2,100	85	----
Same (in main south air course, 6 left south entry).	16686	A	1	1.8	30.5	61.2	6.5	2.7	-----	-----	-----	-----	.9	7,872	14,170	2,120	85	----
Same (composite of samples 16683 to 16686, inclusive).	16687	A	1	2.0	30.7	59.9	7.4	2.8	4.9	77.7	1.7	5.5	1.1	7,756	13,960	------	85	----
			2	-----	31.3	61.2	7.5	2.8	4.8	79.3	1.7	3.9	-----	7,911	14,240	------	------	----
			3	-----	33.8	66.2	-----	3.0	5.2	85.7	1.9	4.2	-----	8,556	15,400	------	------	----
Mulga; Mulga mine, Pratt bed (face of 1 room, 1 left entry, north heading).	10509	A	1	2.1	26.9	66.0	5.0	1.3	-----	-----	-----	-----	1.3	------	-------	2,290	22	----
Same (last crosscut in 1 right entry, 1 left entry)	10507	A	1	2.5	25.3	67.2	5.0	1.6	-----	-----	-----	-----	1.6	------	-------	2,380	22	----
Same (composite of samples 10509 and 10507)	10513	A	1	2.4	25.9	66.8	4.9	1.5	5.2	81.7	1.5	5.2	1.5	8,050	14,490	------	22	----
			2	-----	26.5	68.5	5.0	1.5	5.0	83.7	1.6	3.2	-----	8,244	14,840	------	------	----
			3	-----	27.9	72.1	-----	1.6	5.3	88.1	1.7	3.3	-----	8,678	15,620	------	------	----
Same (face of 7 left entry, north haulage road)	19970	A	1	2.3	27.8	64.8	5.1	1.2	-----	-----	-----	-----	1.8	8,056	14,500	2,480	123	----

Same (face of 19 room, 8 right entry, north haulage road).	19971	A	1	2.4	28.8	63.7	5.1	1.8	----	-----	-----	-----	1.8	8,028	14,450	2,450	123	----
Same (face of 22 room, main east entry)	19978	A	1	2.0	29.8	63.0	5.2	1.2	----	-----	-----	-----	1.4	8.067	14,520	2,580	123	----
Same (face of 6 room, 5 right entry, 1 north entry, main east entry).	19979	A	1	2.2	29.4	63.0	5.4	1.7	----	-----	-----	-----	1.7	8,011	14,420	2,420	123	----
Same (face of 33 room, 4 left entry, north haulageway).	19980	A	1	2.3	27.0	63.9	6.8	2.1	----	-----	-----	-----	1.7	7,884	14,190	2,380	123	----
Same (composite of samples 19970 and 19971, 19978 to 19980, inclusive).	19972	A	1	2.3	28.4	63.8	5.5	1.6	5.1	80.9	1.6	5.3	1.7	8.011	14,420	------	123	----
			2	-----	29.1	65.2	5.7	1.6	4.9	82.8	1.6	3.4	-----	8,194	14,750	------	------	----
			3	-----	30.8	69.2	-----	1.7	5.2	87.7	1.7	3.7	-----	8,689	15,640	------	------	----
2½ miles northeast of; Edgewater mine, Pratt bed (face of 6 east entry, 1 south heading).	W46660	A	1	1.8	30.2	62.3	5.7	1.6	----	-----	-----	-----	-----	7,967	14,340	------	123	----
Same (face of 2 south entry, main west heading)	W46661	A	1	2.9	29.3	62.6	5.2	1.4	----	-----	-----	-----	-----	7,950	14,310	------	123	----
Same (face of 7 west entry, 1 south heading)	W46662	A	1	2.3	30.7	61.5	5.5	1.8	----	-----	-----	-----	-----	7,944	14,300	------	123	----
Same (face of 2 west entry, 1 north heading)	W46663	A	1	1.6	29.8	63.3	5.3	1.4	----	-----	-----	-----	-----	8,044	14,480	------	123	----
Same (face of 2 north entry, main west heading)	W46664	A	1	2.2	29.7	62.1	6.0	1.6	----	-----	-----	-----	-----	7,928	14,270	------	123	----
Same (face of 6 east entry, 2 north heading, bottom level).	W46691	A	1	2.0	28.9	62.4	6.7	1.9	----	-----	-----	-----	-----	7,867	14,160	------	123	----
Same (face of main south heading, bottom level)	W46692	A	1	3.4	30.5	60.3	5.8	1.4	----	-----	-----	-----	-----	7,828	14,090	------	123	----
Same (face of 20 room, 1 left entry, main south heading, bottom level).	W46693	A	1	2.2	29.3	61.9	6.6	1.0	----	-----	-----	-----	-----	7,861	14,150	------	123	----
Same (face of 1 east entry, 2 north heading, bottom level).	W46694	A	1	2.1	29.4	61.5	7.0	1.4	----	-----	-----	-----	-----	7,833	14,100	------	123	----
Same (face of 6 west entry, 2 north heading, bottom level).	W46695	A	1	1.5	29.9	61.7	6.9	1.6	----	-----	-----	-----	-----	7,894	14,210	------	123	----
Same (composite of samples W46660 to W46664 and W46691 to W46695, inclusive).	19643	A	1	2.2	28.8	62.9	6.1	1.6	5.1	79.9	1.5	5.7	-----	7,911	14,240	------	123	----
			2	-----	29.5	64.3	6.2	1.7	5.0	81.7	1.6	3.8	-----	8,089	14,560	------	------	----
			3	-----	31.4	68.6	-----	1.8	5.3	87.1	1.7	4.1	-----	8,622	15,520	------	------	----
New Castle; New Castle No. 2 mine, Mary Lee bed (face of 9 left entry).	79502	A	1	2.1	29.4	53.1	15.4	1.9	----	-----	-----	-----	1.3	6,978	12,560	2,510	------	65
Same (face of slope entry)	79503	A	1	3.1	29.3	52.5	15.1	2.6	----	-----	-----	-----	2.4	6,939	12,490	2,390	------	----
Same (face of 10 right entry)	79504	A	1	2.6	29.1	52.6	15.7	2.5	----	-----	-----	-----	1.7	6,944	12,500	2,410	------	----
Same (face of 4 room, 12 left entry)	79505	A	1	1.8	30.2	55.1	12.9	2.3	----	-----	-----	-----	.9	7,228	13,010	2,410	------	----
Same (composite of samples 79502 to 79505, inclusive).	79506	A	1	2.3	29.9	53.0	14.8	2.4	4.9	70.3	1.5	6.1	1.6	7,017	12,630	------	------	----
			2	-----	30.6	54.3	15.1	2.4	4.7	71.9	1.5	4.4	-----	7,178	12,920	------	------	----
			3	-----	36.0	64.0	-----	2.8	5.6	84.7	1.8	5.1	-----	8,461	15,230	------	------	----
New Castle No. 6 mine, New Castle bed (face of 48 room, 5 left entry).	80099	A	1	3.4	29.7	53.0	13.9	2.1	----	-----	-----	-----	2.4	6,989	12,580	2,480	------	66
Same (face of 4 left entry)	80100	A	1	3.0	30.0	53.6	13.4	2.1	----	-----	-----	-----	1.9	7,039	12,670	2,390	------	----
Same (rib of 4 left entry, at slope)	80101	A	1	2.4	31.0	52.4	14.2	2.3	-----	-----	-----	-----	1.4	6,989	12,580	2,390	------	----
Same (face of 5 right entry)	80102	A	1	3.7	30.4	52.7	13.2	1.9	----	-----	-----	-----	2.6	6,994	12,590	2,460	------	----
Same (face of 1 room, 5 right entry)	80103	A	1	2.8	30.4	53.1	13.7	1.9	----	-----	-----	-----	1.7	7,022	12,640	2,510	------	----
Same (composite of samples 80099 to 80103, inclusive).	80104	A	1	3.0	30.5	52.7	13.8	2.0	5.0	69.9	1.6	7.7	2.0	6,994	12,590	------	------	----
			2	-----	31.4	54.4	14.2	2.1	4.8	72.1	1.6	5.2	-----	7,211	12,980	------	------	----
			3	-----	36.6	63.4	-----	2.4	5.6	84.0	1.9	6.1	-----	8,400	15,120	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Palos, 1 mile southwest of; Risco mine, Mary Lee bed (face of 5 room, 10 left entry).	86868	A	1	2.3	25.9	60.6	11.2	0.9	-----	-----	-----	-----	1.4	7,383	13,290	2,200	------	67
Same (face of 8 room, 12 right entry)	86869	A	1	2.0	26.2	58.3	13.5	1.1	-----	-----	-----	-----	1.0	7,167	12,900	2,620	------	----
Same (face of main slope)	86870	A	1	2.5	26.4	60.0	11.1	.8	-----	-----	-----	-----	1.6	7,378	13,280	2,910	------	----
Same (face of 9 room, 11 left entry)	86871	A	1	2.2	26.2	60.1	11.5	.9	-----	-----	-----	-----	1.2	7,389	13,300	2,740	------	----
Same (face of 13 left entry)	86872	A	1	2.4	26.5	58.9	12.2	1.0	-----	-----	-----	-----	1.5	7,294	13,130	2,850	------	----
Same (composite of samples 86868 to 86872, inclusive).	86873	A	1	2.1	26.7	59.4	11.8	1.0	4.8	74.7	1.6	6.1	1.3	7,328	13,190	------	------	----
			2	-----	27.3	60.6	12.1	1.0	4.7	76.4	1.6	4.2	-----	7,489	13,480	------	------	----
			3	-----	31.0	69.0	-----	1.2	5.3	86.9	1.9	4.7	-----	8,517	15,330	------	------	----
2 miles east of; Bessie mine, Mary Lee bed (face of 25-26 room, 15 right entry).	26900	A	1	2.1	26.7	59.5	10.8	.8	-----	-----	-----	-----	1.4	7,478	13,460	2,810	193	----
Same (face of 27-28 room, 14 right entry)	26901	A	1	1.9	26.6	59.0	12.5	.8	-----	-----	-----	-----	1.4	7,322	13,180	2,790	193	----
Same (face of 11-12 room, 18 left entry)	26902	A	1	2.5	27.8	59.9	9.8	.7	-----	-----	-----	-----	1.8	7,561	13,610	2,810	193	----
Same (composite of samples 26900 to 26902, inclusive).	26903	A	1	2.1	27.5	59.4	11.0	.7	5.0	75.4	1.6	6.3	1.5	7,456	13,420	------	193	----
			2	-----	28.1	60.6	11.3	.7	4.9	76.9	1.7	4.5	-----	7,611	13,700	------	------	----
			3	-----	31.6	68.4	-----	.8	5.5	86.7	1.9	5.1	-----	8,578	15,440	------	------	----
Same (face of 2 room, 10 left entry)	26914	A	1	1.2	30.1	59.3	9.4	.8	-----	-----	-----	-----	.5	7,717	13,890	2,950	193	----
Same (face of 28 room, 9 left entry)	26915	A	1	2.1	29.4	58.9	9.6	.7	-----	-----	-----	-----	1.4	7,600	13,680	2,910	193	----
Same (face of 10 right entry)	26916	A	1	2.0	29.7	59.0	9.3	.7	-----	-----	-----	-----	1.4	7,656	13,780	2,950	193	----
Same (composite of samples 26914 to 26916, inclusive).	26917	A	1	1.8	29.8	59.0	9.4	.8	5.1	76.8	1.6	6.3	1.1	7,650	13,770	------	193	----
			2	-----	30.3	60.1	9.6	.8	5.0	78.2	1.6	4.8	-----	7,794	14,030	------	------	----
			3	-----	33.5	66.5	-----	.9	5.5	86.5	1.8	5.3	-----	8,617	15,510	------	------	----
Palos mine, Mary Lee bed (face of 5 room, 1 cross entry, 4 left entry).	10506	A	1	2.5	26.6	64.1	6.8	.6	-----	-----	-----	-----	1.7	------	-------	2,930	22	----
Same (face of 1 room, 1 cross entry, 4 right entry).	10505	A	1	2.7	24.4	65.3	7.6	.5	-----	-----	-----	-----	1.9	------	-------	2,870	22	----
Same (composite of samples 10506 and 10505)	10514	A	1	2.7	25.9	64.2	7.2	.6	5.2	78.8	1.8	6.4	1.8	7,772	13,990	------	22	----
			2	-----	26.7	65.9	7.4	.6	5.0	80.5	1.8	4.7	-----	7,433	13,380	------	------	----
			3	-----	28.8	71.2	-----	.7	5.4	87.5	1.9	4.5	-----	8,628	15.530	------	------	----
Pinkney; Tutweller No. 3 drift, Nickel Plate bed (4 right heading).	1794	B	1	3.4	26.4	57.5	12.7	1.8	-----	-----	-----	-----	2.1	7,250	13,050	------	22	----
			2	-----	27.3	59.6	13.1	1.9	-----	-----	-----	-----	-----	7.500	13,500	------	------	----
Same (2 left heading)	1793	B	1	3.1	25.3	56.2	15.4	3.1	-----	-----	-----	-----	1.9	------	------	------	22	----
			2	-----	26.1	58.0	15.9	3.2	-----	-----	-----	-----	-----	------	------	------	------	----
Pratt bed (7 left heading, 600 feet from main entry).	1933	B	1	2.1	26.8	61.2	9.9	2.1	-----	-----	-----	-----	1.4	------	------	------	22	----
			2	-----	27.4	62.5	10.1	2.2	-----	-----	-----	-----	-----	------	------	------	------	----
Same (9 right heading, 900 feet from main entry).	1932	B	1	2.3	27.0	57.7	13.0	1.8	-----	-----	-----	-----	1.4	------	------	------	22	----
			2	-----	27.6	59.1	13.3	1.8	-----	-----	-----	-----	-----	------	------	------	------	----

Pinson, 3 miles northwest of; Dixiana No. 4 mine, Black Creek bed (face of 8 room, 12 left entry).	22467	A	1	2.8	30.6	63.9	2.7	.8	-----	-----	-----	-----	1.6	8,117	14,610	2,460	123	----
Same (face of 15 right air course)	22468	A	1	2.4	31.6	63.5	2.5	.8	-----	-----	-----	-----	1.3	8,156	14,680	2,560	123	----
Same (face of 13 right entry)	22469	A	1	2.6	32.0	63.3	2.1	.9	-----	-----	-----	-----	1.4	8,172	14,710	2,460	123	----
Same (face of 8 left entry)	22470	A	1	3.0	31.9	61.8	3.3	.7	-----	-----	-----	-----	1.8	8,039	14,470	2,750	123	----
Same (composite of samples 22467 to 22470, inclusive).	22471	A	1	2.6	31.8	62.9	2.7	.8	5.4	82.7	1.8	6.6	1.5	8,128	14,630	------	123	----
			2	-----	32.7	64.5	2.8	.8	5.2	84.9	1.9	4.4	-----	8,344	15,020	------	------	----
			3	-----	33.6	66.4	-----	.8	5.4	87.3	1.9	4.6	-----	8,583	15,450	------	------	----
Pratt City, 1 mile northwest of; No. 1 shaft, Pratt bed (rib, 6 slope, 19 right entry).	83716	A	1	2.6	27.3	60.3	9.8	1.1	-----	-----	-----	-----	2.2	7,406	13,330	2,800	------	68
Same (slope pillar, between 6 and 7 right entries)	83717	A	1	2.3	28.3	61.5	7.9	1.8	-----	-----	-----	-----	1.9	7,711	13,880	2,310	------	----
Same (slope stump, between 6 and 7 right entries)	83718	A	1	2.3	28.0	57.3	12.4	1.4	-----	-----	-----	-----	1.9	7,233	13,020	2,680	------	----
Same (face of 1 room, 4 left entry, McCardle slope).	83719	A	1	2.3	31.2	61.9	4.6	1.2	-----	-----	-----	-----	1.9	8,011	14,420	2,510	------	----
Same (face of 7 room, 16 right entry)	83720	A	1	1.9	26.6	57.6	13.9	1.5	-----	-----	-----	-----	1.6	7,156	12,880	2,570	------	----
Same (composite of samples 83716 to 83720, inclusive).	83828	A	1	2.3	27.8	60.1	9.8	1.5	4.9	76.1	1.6	6.1	1.9	7,505	13,510	------	------	68
			2	-----	28.5	61.5	10.0	1.5	4.7	77.9	1.6	4.3	-----	7,682	13,830	------	------	----
			3	-----	31.7	68.3	-----	1.7	5.2	86.6	1.8	4.7	-----	8,536	15,370	------	------	----
Same (face of 7 room, between 15 and 16 right entries, No. 6 slope).	84837	A	1	2.1	29.0	63.0	5.9	1.6	-----	-----	-----	-----	1.9	7,861	14,150	2,180	------	----
			2	-----	29.6	64.3	6.1	1.6	-----	-----	-----	-----	-----	8,032	14,460	------	------	----
Same (between 4 and 5 left entries, McCardle slope)	84838	A	1	2.2	31.9	61.4	4.5	1.2	-----	-----	-----	-----	2.0	8,021	14,440	2,620	------	----
			2	-----	32.6	62.8	4.6	1.2	-----	-----	-----	-----	-----	8,200	14,760	------	------	----
Same (rib, 19 right entry, 6 slope)	84839	A	1	1.8	29.3	62.9	6.0	1.8	-----	-----	-----	-----	1.6	7,976	14,360	2,180	------	----
			2	-----	29.8	64.1	6.1	1.8	-----	-----	-----	-----	-----	8,121	14,620	------	------	----
Hamilton slope mine, Mary Lee bed (face of main slope).	83683	A	1	2.0	27.8	60.9	9.3	.8	-----	-----	-----	-----	1.5	7,594	13,670	2,740	------	69
Same (face of 8 right entry, 3,200 feet from outside slope).	83684	A	1	2.8	28.3	61.3	7.6	.8	-----	-----	-----	-----	2.4	7,678	13,820	2,680	------	----
Same (face of air course, 5,000 feet from mine mouth).	83685	A	1	1.4	27.7	61.5	9.4	.7	-----	-----	-----	-----	1.0	7,600	13,680	2,800	------	----
Same (face of 1 left entry)	83686	A	1	1.9	29.7	60.2	8.2	.6	-----	-----	-----	-----	1.2	7,633	13,740	2,740	------	----
Same (face of 5 right entry)	83687	A	1	3.2	28.6	59.5	8.7	.8	-----	-----	-----	-----	2.6	7,511	13,520	2,680	------	----
Same (composite of samples 83683 to 83687, inclusive).	83824	A	1	2.2	28.2	60.9	8.7	.8	5.0	77.1	1.7	6.7	1.7	7,589	13,660	------	------	----
			2	-----	28.8	62.3	8.9	.8	4.9	78.8	1.7	4.9	-----	7,761	13,970	------	------	----
			3	-----	31.6	68.4	-----	.9	5.4	86.5	1.9	5.3	-----	8,522	15,340	------	------	----
Wylam No. 8 mine, American bed (face of 2 room, new slope, air course).	83789	A	1	3.1	32.0	60.9	4.0	1.1	-----	-----	-----	-----	2.4	7,949	14,310	------	------	69
Same (face of new slope)	83790	A	1	3.8	31.0	60.5	4.7	1.2	-----	-----	-----	-----	3.2	7,776	14,000	2,450	------	----
Same (left rib, 75 feet outby face of new slope)	83794	A	1	2.5	32.8	61.6	3.1	1.1	-----	-----	-----	-----	1.8	8,090	14,560	2,510	------	----
Same (composite of samples 83789, 83791, and 83794).	83826	A	1	3.2	31.4	61.3	4.1	1.2	5.4	80.5	1.7	7.1	2.5	7,930	14,270	------	------	----
			2	-----	32.4	63.4	4.2	1.2	5.2	83.2	1.8	4.4	-----	8,192	14,740	------	------	----
			3	-----	33.8	66.2	-----	1.3	5.4	86.8	1.9	4.6	-----	8,551	15,390	------	------	----
Pratt bed (face of 5 west entry, 12 west cross entry).	83791	A	1	2.7	32.1	58.1	7.1	.8	-----	-----	-----	-----	1.8	7,621	13,720	2,450	------	----
Same (face of 18 room, 17 east air course)	83792	A	1	1.9	32.5	59.2	6.4	1.7	-----	-----	-----	-----	1.3	7,874	14,170	2,390	------	----
Same (face of 12 west cross heading)	83793	A	1	2.7	32.2	59.9	5.2	.8	-----	-----	-----	-----	1.8	7,769	13,980	2,420	------	----
Same (composite of samples 83791, 83792 and 83793).	83825	A	1	2.5	31.7	59.3	6.5	1.2	5.2	78.6	1.7	6.8	1.6	7,757	13,960	------	------	----
			2	-----	32.5	60.8	6.7	1.2	5.0	80.6	1.7	4.8	-----	7,956	14,320	------	------	----
			3	-----	34.8	65.2	-----	1.3	5.4	86.4	1.8	5.1	-----	8,527	15,350	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JEFFERSON COUNTY—Continued																		
Republic; Warner mine, Prat bed (43-inch cut)	1755	B	1	2.5	27.1	60.0	10.4	1.7	-----	-----	-----	-----	1.6	7,572	13,630	------	22	----
			2	-----	27.8	61.5	10.7	1.7	-----	-----	-----	-----	-----	7,767	13,980	------	------	----
Same (face of 12 left heading, 19 room, 43-inch cut).	1756	B	1	2.7	25.2	61.8	10.3	1.9	-----	-----	-----	-----	1.8	------	-------	------	22	----
			2	-----	25.9	63.5	10.6	1.9	-----	-----	-----	-----	-----	------	-------	------	------	----
Sayre; Sayre mine, Mary Lee bed (face of entry, 7 room, 2 cross entry, 12 left entry).	81650	A	1	2.5	29.1	52.5	15.9	1.1	-----	-----	-----	-----	1.4	6.844	12,320	2,740	------	70
Same (face of 12 left entry)	81651	A	1	2.3	29.9	54.1	13.7	.9	-----	-----	-----	-----	1.0	7,050	12,690	2,570	------	----
Same (face of 14 left entry)	81652	A	1	2.3	29.9	54.6	13.2	.8	-----	-----	-----	-----	1.0	7,111	12,800	2,910	------	----
Same (face of 16 left entry)	81653	A	1	3.0	28.8	56.0	12.2	1.4	-----	-----	-----	-----	1.7	7,156	12,880	2,850	------	----
Same (face of 16 right entry)	81654	A	1	2.4	29.4	55.8	12.4	1.0	-----	-----	-----	-----	1.1	7,167	12,900	2,450	------	----
Same (face of 15 right entry)	81655	A	1	2.6	29.3	55.4	12.7	.9	-----	-----	-----	-----	1.3	7,150	12,870	2,450	------	----
Same (composite of samples 81650 to 81655, inclusive).	81656	A	1	2.6	29.6	54.4	13.4	1.1	4.9	71.9	1.6	7.1	1.2	7,083	12,750	------	------	----
			2	-----	30.4	55.8	13.8	1.1	4.8	73.8	1.6	4.9	-----	7,272	13,090	------	------	----
			3	-----	35.2	64.8	-----	1.3	5.5	85.6	1.9	5.7	-----	8,428	15,170	------	------	----
Sayreton; Sayreton mine, Mary Lee bed (face of 57 room, 13 west entry).	20993	A	1	2.2	29.6	58.3	9.9	.7	-----	-----	-----	-----	1.4	7,533	13,560	2,790	123	----
Same (face of 58 room, 11 west entry)	20994	A	1	2.5	29.9	57.4	10.2	.8	-----	-----	-----	-----	1.6	7,456	13,420	2,670	123	----
Same (composite of samples 20993 and 20994)	20995	A	1	2.3	29.7	58.0	10.0	.8	5.2	76.7	1.6	5.7	1.5	7,494	13,490	------	123	----
			2	-----	30.5	59.3	10.2	.8	5.0	78.5	1.6	3.9	-----	7,678	13,820	------	------	----
			3	-----	33.9	66.1	-----	.9	5.6	87.4	1.8	4.3	-----	8,544	15,380	------	------	----
Same (pillar of 80 room, 10 east entry)	20996	A	1	2.2	30.2	57.0	10.6	.8	-----	-----	-----	-----	1.2	7,456	13,420	2,850	123	----
			2	-----	30.8	58.4	10.8	.8	-----	-----	-----	-----	-----	7,622	13,720	------	------	----
Warrior; Beltona New Tipple, Jefferson bed (face of 1 cross entry, 4 right entry).	83311	A	1	2.0	33.8	59.5	4.7	2.9	-----	-----	-----	-----	1.2	7,944	14,300	2,390	------	71
Same (face of main east entry)	83312	A	1	2.0	34.6	58.4	5.0	3.0	-----	-----	-----	-----	1.2	7,933	14,280	2,390	------	----
Same (face of 4 right entry, 3 cross entry)	83313	A	1	2.7	32.1	56.9	8.3	3.0	-----	-----	-----	-----	1.9	7,550	13,590	2,420	------	----
Same (face of 3 left entry, north main west entry).	83314	A	1	2.1	33.8	58.0	6.1	2.6	-----	-----	-----	-----	1.3	7,800	14,040	2,420	------	----
Same (face of main west entry)	83315	A	1	2.3	33.4	58.1	6.2	3.4	-----	-----	-----	-----	1.5	7,789	14,020	2,340	------	----
Same (composite of samples 83311 to 83315, inclusive).	83316	A	1	2.2	33.3	58.5	6.0	2.9	5.3	78.2	1.6	6.0	1.4	7,817	14,070	------	------	----
			2	-----	34.0	59.9	6.1	3.0	5.2	80.0	1.6	4.1	-----	7,989	14,380	------	------	----
			3	-----	36.2	63.8	-----	3.2	5.6	85.1	1.8	4.3	-----	8,506	15,310	------	------	----

3 miles west of; Langley mine, Black Creek bed (face of main entry).	81929	A	1	3.6	30.0	63.7	2.7	.9	-----	-----	-----	-----	2.8	8,011	14,420	2,570	------	71
Same (face of 1 left entry)	81930	A	1	3.2	32.2	62.8	1.8	.6	-----	-----	-----	-----	2.3	8,111	14,600	2,680	------	----
Same (face of 1 right entry, main entry)	81931	A	1	4.1	31.2	62.3	2.4	.6	-----	-----	-----	-----	3.4	8,006	14,410	2,570	------	----
Same (composite of samples 81929 to 81931, inclusive).	81932	A	1	3.7	31.2	62.8	2.3	.7	5.4	81.8	1.8	8.0	2.9	8,050	14,490	------	------	----
			2	-----	32.3	65.3	2.4	.8	5.2	84.9	1.9	4.8	-----	8,356	15,040	------	------	----
			3	-----	33.1	66.9	-----	.8	5.3	86.9	1.9	5.1	-----	8,556	15,400	------	------	----
2 miles south of; Pritchett mine, No. 1 opening, Jefferson bed (face of 5 room, 4 left entry).	83783	A	1	2.6	32.9	58.0	6.5	2.8	-----	-----	-----	-----	1.7	7,684	13,830	2,340	------	72
Same (face of 5 left entry)	83784	A	1	2.1	32.2	58.6	7.1	4.1	-----	-----	-----	-----	1.3	7,677	13,820	2,280	------	----
Same (face of 1 left entry)	83785	A	1	2.4	32.5	59.5	5.6	2.8	-----	-----	-----	-----	1.5	7,771	13,990	2,340	------	----
Same (face of north entry)	83786	A	1	2.6	33.2	57.3	6.9	3.1	-----	-----	-----	-----	2.0	7,699	13,860	2,310	------	----
Same (face of straight entry)	83787	A	1	1.9	33.1	55.6	9.4	4.9	-----	-----	-----	-----	1.3	7,463	13,430	2,280	------	----
Same (composite of samples 83783 to 83787, inclusive).	83788	A	1	2.3	32.2	58.4	7.1	3.4	5.1	76.6	1.7	6.1	1.5	7,683	13,830	------	------	----
			2	-----	33.0	59.7	7.3	3.5	4.9	78.4	1.7	4.2	-----	7,864	14,160	------	------	----
			3	-----	35.6	64.4	-----	3.8	5.3	84.6	1.8	4.5	-----	8,483	15,280	------	------	----
Watt mine, Black Creek bed (39½-inch cut)	3949	B	1	1.3	33.2	63.6	1.9	.7	5.3	83.2	1.8	7.1	.3	8,428	15,170	------	22	----
			2	-----	33.7	64.4	1.9	.7	5.2	84.3	1.8	6.1	-----	8,539	15,370	------	------	----
			3	-----	34.3	65.7	-----	.8	5.3	86.0	1.8	6.1	-----	8,706	15,670	------	------	----
Jefferson bed (27-inch cut)	3944	B	1	2.2	31.7	63.3	2.8	1.1	5.0	80.9	1.7	8.5	1.0	8,233	14,820	------	22	----
			2	-----	32.4	64.7	2.9	1.1	4.9	82.7	1.8	6.6	-----	8,417	15,150	------	------	----
			3	-----	33.4	66.6	-----	1.1	5.0	85.1	1.8	7.0	-----	8,661	15,590	------	------	----
Wylam; Pratt No. 4 mine, Pratt bed (5 room, Kelso entry).	2433	B	1	1.9	28.5	64.7	4.9	2.3	-----	-----	-----	-----	9.	------	------	------	22	----
			2	-----	29.1	65.9	5.0	2.3	-----	-----	-----	-----	-----	------	------	------	------	----
Same (1 room, 16 cross heading)	2430	B	1	1.6	30.8	64.1	3.5	.6	-----	-----	-----	-----	.8	------	------	------	22	----
			2	-----	31.4	65.0	3.6	.6	-----	-----	-----	-----	-----	------	------	------	------	----
Pratt No. 5 mine, Pratt bed (pillar in 44 room, 30 west entry).	W46829	A	1	1.7	32.0	61.2	5.1	1.5	-----	-----	-----	-----	-----	8,017	14,430	------	123	----
Same (face of 37 west air course)	W46830	A	1	1.9	30.4	62.7	5.0	1.5	-----	-----	-----	-----	-----	8,044	14,480	------	123	----
Same (face of 33 west air course)	W46833	A	1	2.2	30.3	62.6	4.9	1.4	-----	-----	-----	-----	-----	8,028	14,450	------	123	----
Same (pillar in 2 room, old 31 west entry)	W46834	A	1	1.9	31.9	61.8	4.4	1.3	-----	-----	-----	-----	-----	8,067	14,520	------	123	----
Same (composite of samples W46829, W46830, W46833 and W46834.)	19642	A	1	1.9	30.3	63.0	4.8	1.5	5.1	81.2	1.6	5.8	-----	8,061	14,510	------	123	----
			2	-----	30.9	64.2	4.9	1.6	5.0	82.9	1.7	3.9	-----	8,222	14,800	------	------	----
			3	-----	32.5	67.5	-----	1.6	5.2	87.1	1.7	4.4	-----	8,644	15,560	------	------	----
Pratt No. 8 mine, Pratt bed (face of 7 room, 13 west entry, main west slope).	W46821	A	1	1.9	33.1	59.1	5.9	1.8	-----	-----	-----	-----	-----	7,883	14,190	------	123	----
Same (face of 6 room, 3 right entry, back slope)	W46822	A	1	2.0	35.1	58.3	4.6	1.1	-----	-----	-----	-----	-----	7,956	14,320	------	123	----
Same (face of main west slope)	W46823	A	1	2.1	33.0	59.7	5.2	1.6	-----	-----	-----	-----	-----	7,956	14,320	------	123	----
Same (pillar in 10 room, 29 west entry)	W46824	A	1	1.9	32.9	60.5	4.7	1.4	-----	-----	-----	-----	-----	8,072	14,530	------	123	----
Same (pillar at face of 26 east entry)	W46825	A	1	1.6	34.4	59.6	4.4	1.2	-----	-----	-----	-----	-----	8,072	14,530	------	123	----
Same (composite of samples W46821 to W46825, inclusive).	19644	A	1	1.9	32.6	60.5	5.0	1.6	5.2	80.5	1.6	6.1	-----	8,006	14,410	------	123	----
			2	-----	33.2	61.7	5.1	1.6	5.1	82.1	1.6	4.5	-----	8,156	14,680	------	------	----
			3	-----	35.0	65.0	-----	1.7	5.4	86.5	1.7	4.7	-----	8,594	15,470	------	------	----
Wylam No. 5 mine, Pratt bed (face of 20 room, 38 west between 1 and 2 cross entries).	83721	A	1	1.9	29.5	62.0	6.6	1.8	-----	-----	-----	-----	1.7	7,872	14,170	2,280	------	72
Same (neck of 22 room, 25 west entry)	83722	A	1	2.2	32.1	60.6	5.1	1.7	-----	-----	-----	-----	1.9	7,983	14,370	2,240	------	----
Same (face of 4 room, 38 west entry between 1 and 2 cross entries).	83723	A	1	2.3	29.8	63.9	4.0	1.2	-----	-----	-----	-----	2.1	8,083	14,550	2,300	------	----
Same (face of 20 room, 25 west cross entry)	83724	A	1	2.3	32.2	61.4	4.1	1.6	-----	-----	-----	-----	1.8	8,044	14,480	2,260	------	----
Same (face of 1 room, 38 east entry)	83725	A	1	1.7	30.3	61.1	6.9	2.3	-----	-----	-----	-----	1.5	7,806	14,050	2,240	------	----
Same (composite of samples 83721 to 83725, inclusive).	83823	A	1	2.1	31.2	61.3	5.4	1.8	5.2	80.3	1.6	5.7	1.8	7,948	14,310	------	------	----
			2	-----	31.9	62.6	5.5	1.8	5.1	82.0	1.6	4.0	-----	8,118	14,620	------	------	----
			3	-----	33.8	66.2	-----	1.9	5.4	86.8	1.7	4.2	-----	8,590	15,470	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate						Calorific value			Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Air-drying loss	Calories	B. t. u.	Softening temperature (° F.)	Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
MARION COUNTY																		
Brilliant; Brilliant No. 5 mine, Black Creek bed (face of 13 left entry).	79573	A	1	4.6	38.2	54.0	3.2	1.1	-----	-----	-----	-----	1.9	7,589	13,660	2,280	------	73
Same (face of 11 left entry)	79574	A	1	5.8	37.3	54.1	2.8	1.0	-----	-----	-----	-----	2.9	7,572	13,630	2,250	------	----
Same (face of main entry)	79575	A	1	5.6	36.9	54.8	2.7	1.0	-----	-----	-----	-----	2.6	7,589	13,660	2,280	------	----
Same (face of 11 right entry)	79576	A	1	4.9	35.9	55.8	3.4	.9	-----	-----	-----	-----	2.1	7,556	13,600	2,250	------	----
Same (composite of samples 79573 to 79576, inclusive).	79577	A	1	5.4	36.8	54.8	3.0	1.0	5.7	76.7	1.7	11.9	2.4	7,572	13,630	------	------	----
			2	-----	38.9	57.9	3.2	1.0	5.4	81.1	1.8	7.5	-----	8,006	14,410	------	------	----
			3	-----	40.1	59.9	-----	1.0	5.6	83.8	1.8	7.8	-----	8,267	14,880	------	------	----
1 mile south of; Brilliant No. 7 mine, Black Creek bed (face of 7 left entry, 1 straight entry).	79578	A	1	5.1	38.8	51.6	4.5	2.5	-----	-----	-----	-----	2.7	7,444	13,400	2,200	------	74
Same (face of main entry)	79579	A	1	4.9	39.3	51.2	4.6	2.5	-----	-----	-----	-----	2.6	7,406	13,330	2,240	------	----
Same (face of 1 right cross entry, 6 right entry)	79580	A	1	4.9	37.7	55.1	2.3	.7	-----	-----	-----	-----	1.8	7,611	13,700	2,280	------	----
Same (face of 6 right entry)	79581	A	1	5.4	36.5	55.4	2.7	.8	-----	-----	-----	-----	2.4	7,567	13,620	2,110	------	----
Same (face of 7 right entry)	79582	A	1	5.3	37.4	54.5	2.8	.9	-----	-----	-----	-----	2.7	7,544	13,580	2,330	------	----
Same (face of 8 left entry)	79583	A	1	4.5	38.4	53.1	4.0	1.9	-----	-----	-----	-----	2.2	7,572	13,630	2,240	------	----
Same (composite of samples 79578 to 79583, inclusive).	79584	A	1	5.1	37.8	53.5	3.6	1.6	5.6	75.4	1.6	12.2	2.4	7,544	13,580	------	------	----
			2	-----	39.9	56.3	3.8	1.6	5.3	79.5	1.7	8.1	-----	7,950	14,310	------	------	----
			3	-----	41.4	58.6	-----	1.7	5.5	82.6	1.8	8.4	-----	8,261	14,870	------	------	----
ST. CLAIR COUNTY																		
Acmar; New Acton mine, Helena bed (face of 4 right entry, slope entry).	84944	A	1	5.5	33.0	57.4	4.1	1.2	-----	-----	-----	-----	4.6	7,600	13,680	1,910	------	74
Same (face of 5 right entry, slope entry)	84945	A	1	4.5	34.6	56.7	4.2	.9	-----	-----	-----	-----	3.6	7,600	13,680	1,910	------	----
Same (face of 4 room, 1 left entry, slope entry)	84946	A	1	3.6	34.3	56.2	5.9	1.0	-----	-----	-----	-----	2.9	7,567	13,620	1,910	------	----
Same (face of slope entry, below 5 left entry)	84947	A	1	5.7	33.1	56.0	5.2	.9	-----	-----	-----	-----	5.2	7,400	13,320	1,940	------	----
Same (composite of samples 84944 to 84947, inclusive).	84948	A	1	4.7	33.4	56.9	5.0	.9	5.5	76.4	1.6	10.6	4.1	7,561	13,610	------	------	----
			2	-----	35.1	59.7	5.2	1.0	5.3	80.1	1.7	6.7	-----	7,933	14,280	------	------	----
			3	-----	37.0	63.0	-----	1.0	5.6	84.6	1.8	7.0	-----	8,372	15,070	------	------	----
Coal City; Coal Branch mine, Coal City bed (face of 1 left room, 26 entry, 3,000 feet north of mine mouth)	12440	B	1	2.8	32.9	60.3	4.0	1.1	-----	-----	-----	-----	1.8	8,056	14,500	2,330	85	----
Same (end of 34 entry, 2,800 feet north of mine mouth).	12441	B	1	2.0	34.3	58.2	5.5	1.3	-----	-----	-----	-----	1.2	8,000	14,400	2,230	85	----
Same (end of 32 room, 3,000 feet northeast of mine mouth).	12442	B	1	2.4	33.7	60.7	3.2	.8	-----	-----	-----	-----	1.4	8,217	14,790	2,180	85	----
Same (composite of samples 12440 to 12442, inclusive).	12443	B	1	2.4	33.3	60.0	4.3	1.1	5.3	81.9	1.5	5.9	1.5	8,139	14,650	------	85	----
			2	-----	34.1	61.5	4.4	1.1	5.1	83.9	1.5	4.0	-----	8,339	15,010	------	------	----
			3	-----	35.7	64.3	-----	1.2	5.4	87.7	1.6	4.1	-----	8,722	15,700	------	------	----

Vulcan No. 4 mine, Broken Arrow bed (face of 21 room, 2 left heading, 750 feet southeast of mine mouth).	12436	B	1	3.7	29.1	58.7	8.5	1.5	-----	-----	-----	-----	2.9	------	-------	------	85	----
Same (1,100 feet east of mine mouth)	12437	B	1	3.5	29.0	59.3	8.2	1.4	-----	-----	-----	-----	2.7	------	-------	2,350	85	----
Same (face of 15 room, 2 left heading, 600 feet south of mine mouth).	12438	B	1	4.4	27.7	56.6	11.3	1.4	-----	-----	-----	-----	3.7	------	-------	2,400	85	----
Same (composite of samples 12436 to 12438, inclusive).	12439	B	1	3.9	28.1	58.7	9.3	1.5	5.1	75.7	1.3	7.1	3.1	7,500	13,500	------	85	----
			2	-----	29.3	61.0	9.7	1.5	4.9	78.8	1.4	3.7	-----	7,806	14,050	------	------	----
			3	-----	32.4	67.6	-----	1.7	5.4	87.3	1.5	4.1	-----	8,644	15,560	------	------	----
Davis (Tillman station); Margaret No. 1 mine, Harkness bed (main entry, 800 feet from mine mouth).	3484	B	1	3.4	30.7	57.1	8.8	2.3	5.2	73.8	1.5	8.4	1.8	7,422	13,360	------	22	----
			2	-----	31.8	59.0	9.2	2.4	5.0	76.4	1.6	5.4	-----	7,688	13,830	------	------	----
			3	-----	35.0	65.0	-----	2.7	5.5	84.1	1.7	6.0	-----	8,456	15,220	------	------	----
Margaret, 1 mile northeast of; Margaret No. 3 mine, Harkness bed (face of cross entry, 7 north entry).	79270	A	1	2.5	35.7	56.2	5.6	1.5	-----	-----	-----	-----	1.0	7,744	13,940	2,420	------	75
Same (face of 6 north entry)	79271	A	1	2.9	33.0	56.4	7.7	2.4	-----	-----	-----	-----	1.6	7,533	13,560	2,280	------	----
Same (face of 5 north entry)	79272	A	1	2.7	32.9	53.4	11.0	2.9	-----	-----	-----	-----	1.4	7,250	13,050	2,280	------	----
Same (face of 4 north entry)	79273	A	1	3.0	33.5	55.6	7.9	2.8	-----	-----	-----	-----	1.6	7,517	13,530	2,110	------	----
Same (cross entry, between 3 and 4 north entries).	79274	A	1	2.2	33.2	56.4	8.2	2.1	-----	-----	-----	-----	.7	7,478	13,460	2,150	------	----
Same (composite of samples 79270 to 79274, inclusive).	79275	A	1	2.5	33.8	55.8	7.9	2.3	5.1	75.2	1.7	7.8	1.3	7.517	13,530	------	------	----
			2	-----	34.7	57.2	8.1	2.4	5.0	77.1	1.8	5.6	-----	7,711	13,880	------	------	----
			3	-----	37.7	62.3	-----	2.6	5.4	83.9	1.9	6.2	-----	8,389	15,100	------	------	----
3 miles north of; Margaret No. 5 mine, Harkness bed (near face of slope, 150 feet below 5 right entry).	84991	A	1	2.5	32.8	54.8	9.9	1.6	-----	-----	-----	-----	2.2	7,306	13,150	2,130	------	76
Same (face of 5 right entry)	84992	A	1	2.3	33.0	55.3	9.4	2.6	-----	-----	-----	-----	2.0	7,361	13,250	2,090	------	----
Same (face of 4 left entry)	84993	A	1	2.3	34.3	56.1	7.3	2.0	-----	-----	-----	-----	1.9	7,578	13,640	2,130	------	----
Same (face of 5 left entry)	84994	A	1	2.4	33.3	55.3	9.0	1.9	-----	-----	-----	-----	2.0	7,428	13,370	2,090	------	----
Same (face of 4 right entry)	84995	A	1	2.1	34.2	55.9	7.8	2.0	-----	-----	-----	-----	1.8	7,550	13,590	2,130	------	----
Same (composite of samples 84991 to 84995, inclusive).	84996	A	1	2.3	33.7	55.4	8.6	1.9	5.2	74.6	1.7	8.0	2.0	7,439	13,390	------	------	----
			2	-----	34.5	56.7	8.8	1.9	5.0	76.3	1.7	6.3	-----	7,611	13,700	------	------	----
			3	-----	37.8	62.2	-----	2.1	5.5	83.7	1.9	6.8	-----	8,350	15,030	------	------	----
Parsons, 1 mile west of; Acmar mine, Harkness bed (face of 19 room, 6 left entry).	18853	A	1	2.5	33.3	53.1	11.1	.9	-----	-----	-----	-----	1.1	7,306	13,150	2,660	123	----
Same (face of 14 room, 5 left entry)	18854	A	1	2.6	33.9	51.7	11.8	.9	-----	-----	-----	-----	1.2	7,211	12,980	2,650	123	----
Same (composite of samples 18853 and 18854)	18855	A	1	2.5	33.1	63.0	11.4	.9	5.0	72.8	1.7	8.2	1.1	7,261	13,070	------	123	----
			2	-----	34.0	54.3	11.7	.9	4.9	74.7	1.7	6.1	-----	7,450	13,410	------	------	----
			3	-----	38.5	61.5	-----	1.0	5.5	84.6	1.9	7.0	-----	8,439	15,190	------	------	----
Same, 1 mile north of; Margaret No. 2 mine, Harkness bed (face of 14 north entry).	79256	A	1	1.8	34.2	54.8	9.2	3.3	-----	-----	-----	-----	.5	7,489	13,480	2,340	------	77
Same (face of 19 room, 14 south entry)	79257	A	1	1.8	34.2	54.0	10.0	2.5	-----	-----	-----	-----	.6	7,428	13,370	2,340	------	----
Same (face of 15 north entry)	79258	A	1	2.1	33.7	57.3	6.9	1.9	-----	-----	-----	-----	.9	7,678	13,820	2,340	------	----
Same (face of 15 south entry)	79259	A	1	1.9	33.9	57.4	6.8	2.0	-----	-----	-----	-----	.7	7,722	13,900	2,390	------	----
Same (face of 16 room, 13 north entry)	79260	A	1	2.4	33.7	56.2	7.7	1.6	-----	-----	-----	-----	1.0	7,567	13,620	2,190	------	----
Same (composite of samples 79256 to 79260, inclusive).	79261	A	1	1.9	33.5	56.5	8.1	2.2	5.1	76.1	1.8	6.7	.8	7,583	13,650	------	------	----
			2	-----	34.1	57.6	8.3	2.2	5.0	77.6	1.8	5.1	-----	7,733	13,920	------	------	----
			3	-----	37.2	62.8	-----	2.4	5.4	84.6	2.0	5.6	-----	8,433	15,180	------	------	----
Same (face of 11 room, 10 south entry)	24374	A	1	2.4	32.2	55.3	10.1	1.4	-----	-----	-----	-----	1.1	7,367	13,260	2,660	123	----
Same (face of 11 north entry)	24375	A	1	2.4	32.7	55.1	9.8	1.9	-----	-----	-----	-----	1.1	7,394	13,310	2,340	123	----
Same (face of 9 room, 10 north entry)	24376	A	1	2.2	33.7	54.1	10.0	2.0	-----	-----	-----	-----	1.0	7,411	13,340	2,340	123	----
Same (composite of samples 24374 to 24376, inclusive).	24377	A	1	2.3	33.1	54.6	10.0	1.8	5.1	74.0	1.7	7.4	1.1	7,406	13,330	------	123	----
			2	-----	33.8	55.9	10.3	1.8	4.9	75.7	1.7	5.6	-----	7,578	13,640	------	------	----
			3	-----	37.7	62.3	-----	2.0	5.5	84.3	1.9	6.3	-----	8,444	15,200	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate					Ultimate				Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ST. CLAIR COUNTY—Continued																		
Sanie, 3 miles west of; Margaret No. 1 mine, Harkness bed (face of 12 north entry).	18549	A	1	1.9	33.0	52.8	12.3	2.1	-----	-----	-----	-----	0.8	7,189	12,940	2,290	123	----
Same (face of 11 south entry)	18550	A	1	2.1	31.7	53.6	12.6	1.9	-----	-----	-----	-----	1.0	7,156	12,880	2,290	123	----
Same (face of 8 south entry)	18551	A	1	2.6	31.7	53.6	12.1	1.9	-----	-----	-----	-----	1.4	7,150	12,870	2,270	123	----
Same (composite of samples 18549 to 18551, inclusive).	18552	A	1	2.0	31.8	53.8	12.4	1.9	4.9	72.1	1.7	7.0	1.1	7,144	12,860	------	123	----
			2	-----	32.6	54.7	12.7	2.0	4.7	73.7	1.7	5.2	-----	7,306	13,150	------	------	----
			3	-----	37.3	62.7	-----	2.2	5.4	84.4	2.0	6.0	-----	8,367	15,060	------	------	----
SHELBY COUNTY																		
Aldrich; Aldrich mine, Montevalle bed (9 west heading, main slope).	9339	B	1	2.4	36.0	52.5	9.1	.8	5.2	74.3	1.0	9.6	1.1	7,417	13,350	------	22	----
			2	-----	36.9	53.8	9.3	.8	5.1	76.2	1.0	7.6	-----	7,600	13,680	------	------	----
			3	-----	40.7	59.3	-----	.9	5.6	84.0	1.2	8.3	-----	8,378	15,080	------	------	----
Same (37 room, 6 west heading)	9340	B	1	11.0	30.2	47.0	11.8	.7	-----	-----	-----	-----	9.8	6,444	11,600	------	22	----
			2	-----	33.9	52.9	13.2	.8	-----	-----	-----	-----	-----	7,239	13,030	------	------	----
Same (face of 9 panel)	26730	A	1	2.4	40.0	49.5	8.1	.8	-----	-----	-----	-----	1.0	7,522	13,540	2,410	193	----
Same (face of 6 panel)	26731	A	1	2.3	39.8	51.8	6.1	.7	-----	-----	-----	-----	1.0	7,661	13,790	2,470	193	----
Same (face of 1 panel)	26732	A	1	2.2	38.5	52.7	6.6	.8	-----	-----	-----	-----	.8	7,667	13,800	2,350	193	----
Same (face of 2 panel)	26733	A	1	2.1	38.0	52.4	7.5	.7	-----	-----	-----	-----	.9	7,533	13,560	2,090	193	----
Same (composite of samples 26730 to 26733, inclusive).	26734	A	1	2.3	38.6	51.9	7.2	.8	5.2	75.8	1.0	10.0	.9	7,583	13,650	------	193	----
			2	-----	39.5	53.1	7.4	.8	5.1	77.5	1.0	8.2	-----	7,761	13,970	------	------	----
			3	-----	42.7	57.3	-----	.8	5.5	83.7	1.1	8.9	-----	8,378	15,080	------	------	----
Boothton; Boothton No. 1 mine, Gholson bed (face of 5 east entry, slope entry).	78773	A	1	3.6	34.7	57.0	4.7	.7	-----	-----	-----	-----	2.2	7,739	13,930	2,110	------	78
Same (face of 5 west entry, slope entry)	78774	A	1	2.7	34.0	59.8	3.5	.8	-----	-----	-----	-----	1.3	7,961	14,330	2,090	------	----
Same (face of 3 wall, between 2 and 3 entries)	78775	A	1	3.4	35.1	57.0	4.5	.9	-----	-----	-----	-----	2.1	7,811	14,060	2,200	------	----
Same (composite of samples 78773 to 78775, inclusive).	78776	A	1	3.1	34.6	58.1	4.2	.7	5.4	79.2	1.4	9.1	1.9	7,844	14,120	------	------	----
			2	-----	35.7	60.0	4.3	.7	5.2	81.7	1.5	6.6	-----	8,094	14,570	------	------	----
			3	-----	37.4	62.6	-----	.7	5.5	85.4	1.6	6.8	-----	8,461	15,230	------	------	----
Boothton No. 2 mine, Clark bed (face of 15 room, 3 west entry, slope entry).	78777	A	1	2.6	37.0	55.0	5.4	.5	-----	-----	-----	-----	1.4	7,817	14,070	2,180	------	78
Same (near face of main slope)	78778	A	1	2.6	35.8	56.0	5.6	.8	-----	-----	-----	-----	1.3	7,789	14,020	2,110	------	----
Same (face of 15 room, 3 east entry, slope entry)	78779	A	1	2.9	33.8	56.1	7.2	.8	-----	-----	-----	-----	1.7	7,628	13,730	2,280	------	----
Same (face of 11 room, 5 east entry, description says "slope entry").	78780	A	1	2.4	35.8	56.4	5.4	.8	-----	-----	-----	-----	1.2	7,806	14,050	2,060	------	----

Same (face of 5 west entry, slope entry)	78781	A	1	2.2	35.1	55.9	6.8	.7	-----	-----	-----	-----	1.0	7,750	13,950	2,250	------	----
Same (composite of samples 78777 to 78781, inclusive).	78782	A	1	2.4	36.0	55.5	6.1	.7	5.3	78.0	1.4	8.5	1.3	7,756	13,960	------	------	----
			2	-----	36.9	56.8	6.3	.7	5.1	80.0	1.4	6.5	-----	7,950	14,310	------	------	----
			3	-----	39.4	60.6	-----	.7	5.5	85.3	1.5	7.0	-----	8,483	15,270	------	------	----
Boothton No. 3 mine, Gholson bed (face of 5 room, 4 left entry, slope entry).	78783	A	1	2.8	36.0	58.5	2.7	.7	-----	-----	-----	-----	1.3	7,978	14,360	2,280	------	79
Same (face of 17 room, 4 right entry, slope entry)	78784	A	1	3.2	34.9	59.2	2.7	.8	-----	-----	-----	-----	1.9	7,933	14,280	2,250	------	----
Same (face of main slope)	78785	A	1	2.9	35.5	58.5	3.1	.7	-----	-----	-----	-----	1.5	7,928	14,270	2,260	------	----
Same (composite of samples 78783 to 78785, inclusive).	78786	A	1	2.9	35.7	58.7	2.7	.7	5.4	80.2	1.5	9.5	1.6	7,967	14,340	------	------	----
			2	-----	36.8	60.4	2.8	.7	5.3	82.7	1.5	7.0	-----	8,211	14,780	------	------	----
			3	-----	37.9	62.1	-----	.7	5.4	85.1	1.6	7.2	-----	8,444	15,200	------	------	----
Coalmont; Coalmont mine, Thompson bed (58-inch cut.)	3745	B	1	2.8	32.6	58.4	6.2	.9	5.1	76.6	1.1	10.1	1.1	7,700	13,860	------	22	----
			2	-----	33.5	60.1	6.4	.9	4.9	78.7	1.2	7.9	-----	7,917	14,250	------	------	----
			3	-----	35.8	64.2	-----	1.0	5.2	84.1	1.2	8.5	-----	8,461	15,230	------	------	----
Coalmont No. 2 mine, Clark bed (face of 7 right heading).	80427	A	1	2.5	33.7	50.8	13.0	.7	-----	-----	-----	-----	1.1	7,100	12,780	2,280	------	79
Same (face of 12 right heading)	80428	A	1	1.8	33.7	56.8	7.7	.7	-----	-----	-----	-----	.6	7,689	13,840	2,240	------	----
Same (75 feet outby face of 12 left heading)	80429	A	1	2.4	33.4	55.3	8.9	.7	-----	-----	-----	-----	1.1	7,489	13,480	2,190	------	----
Same (50 feet outby face of 13 left heading)	80430	A	1	2.4	33.6	52.2	11.8	.6	-----	-----	-----	-----	1.1	7,211	12,980	2,190	------	----
Same (composite of samples 80427 to 80430, inclusive).	80431	A	1	2.3	34.1	53.2	10.4	.6	5.0	73.9	1.4	8.7	1.0	7,733	13,200	------	------	----
			2	-----	34.9	54.5	10.6	.6	4.8	75.6	1.4	7.0	-----	7,506	13,510	------	------	----
			3	-----	39.1	60.9	-----	.7	5.4	84.6	1.6	7.7	-----	8,400	15,120	------	------	----
Coalmont No. 4 mine, Thompson bed (face of 1 left heading).	80432	A	1	3.1	28.5	53.8	14.6	1.2	-----	-----	-----	-----	1.3	6,867	12,360	2,340	------	80
Same (face of 1 right heading)	80433	A	1	3.6	28.4	51.1	16.9	1.3	-----	-----	-----	-----	3.1	6,544	11,780	2,280	------	----
Same (face of 2 left heading)	80434	A	1	3.0	28.4	47.4	21.2	1.0	-----	-----	-----	-----	1.6	6,283	11,310	2,240	------	----
Same (face of 2 right heading)	80435	A	1	3.3	28.2	56.0	12.5	1.1	-----	-----	-----	-----	1.8	7,006	12,610	2,240	------	----
Same (composite of samples 80432 to 80435, inclusive).	80436	A	1	3.2	28.1	52.4	16.3	1.2	4.8	67.8	1.2	8.7	2.0	6,667	12,000	------	------	----
			2	-----	29.1	54.1	16.8	1.2	4.6	70.0	1.3	6.1	-----	6,889	12,400	------	------	----
			3	-----	34.9	65.1	-----	1.4	5.6	84.2	1.5	7.3	-----	8,283	14,910	------	------	----
Falliston, ½ mile east of; Falliston mine, Buck bed	3744	B	1	2.6	34.2	60.0	3.2	.7	5.3	78.6	1.3	10.9	1.1	8,028	14,450	------	22	----
			2	-----	35.1	61.6	3.3	.7	5.2	80.7	1.4	8.7	-----	8,183	14,730	------	------	----
			3	-----	36.3	63.7	-----	.7	5.3	83.4	1.4	9.2	-----	8,517	15,330	------	------	----
Glen Carbon; Glen Carbon mine, Gholson bed (face of C heading).	10503	A	1	2.2	31.5	61.5	4.8	.6	-----	-----	-----	-----	.9	------	------	2,180	22	----
Same (face of 11 east heading)	10504	A	1	3.2	31.5	61.6	3.7	.6	-----	-----	-----	-----	1.7	------	------	2,200	22	----
Same (face of 6 west heading)	10502	A	1	2.6	33.3	60.0	4.1	.5	-----	-----	-----	-----	1.2	------	------	2,410	22	----
Same (composite of samples 10503, 10504 and 10502).	10515	A	1	3.0	32.6	60.0	4.4	.6	5.4	80.7	1.4	7.5	1.3	7,917	14,250	------	22	----
			2	-----	33.6	61.9	4.5	.6	5.3	83.1	1.4	5.1	-----	8,156	14,680	------	------	----
			3	-----	35.2	64.8	-----	.7	5.5	87.0	1.5	5.3	-----	8,539	15,370	------	------	----
Same (face of 15 room, 12 east heading, 3,000 feet from mine mouth).	9667	B	1	3.1	32.5	61.1	3.3	.6	5.5	80.7	1.3	8.6	2.0	8,033	14,460	2,150	22	----
			2	-----	33.5	63.1	3.4	.6	5.3	83.3	1.3	6.1	-----	8,289	14,920	------	------	----
			3	-----	34.7	65.3	-----	.7	5.5	86.2	1.3	6.3	-----	8,583	15,450	------	------	----
Helena, 7,000 feet southwest of; No. 3 Roebuck mine, Helena bed (face of 3 left heading).	80488	A	1	2.5	33.6	53.3	10.6	.4	-----	-----	-----	-----	1.0	7,194	12,950	2,790	------	80
Same (face of 3 right heading)	80489	A	1	3.2	33.1	53.3	10.4	.4	-----	-----	-----	-----	1.8	7,139	12,850	2,390	------	----
Same (face of 2 room, 11 left heading)	80490	A	1	2.2	33.5	54.7	9.6	.4	-----	-----	-----	-----	.7	7,328	13,190	2,740	------	----
Same (face of 3 room, 1 left heading)	80491	A	1	2.2	33.3	53.3	11.2	.5	-----	-----	-----	-----	.8	7,189	12,940	2,510	------	----
Same (composite of samples 40488 to 80491, inclusive).	80492	A	1	2.5	33.3	53.7	10.5	.4	5.3	73.4	1.4	9.0	1.1	7,183	12,930	------	------	----
			2	-----	34.2	55.0	10.8	.4	5.1	75.3	1.4	7.0	-----	7,367	13,260	------	------	----
			3	-----	38.3	61.7	-----	.5	5.7	84.4	1.6	7.8	-----	8,256	14,860	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SHELBY COUNTY—Continued																		
Helena, 2½ miles southwest of; Eureka No. 2 mine, Helena bed (face of 7 right air course, between 19 and 20 rooms).	25543	A	1	2.9	34.8	51.6	10.7	0.4	-----	-----	-----	-----	1.4	7,261	13,070	2,610	193	----
Same (face of 22 room, 6 left entry)	25544	A	1	2.7	34.5	54.1	8.7	.4	-----	-----	-----	-----	1.0	7,439	13,390	2,400	193	----
Same (face of 30 room, 8 right cross heading)	25545	A	1	2.8	34.7	52.7	9.8	.4	-----	-----	-----	-----	1.3	7,317	13,170	2,410	193	----
Same (composite of samples 25543 to 25545, inclusive).	25546	A	1	2.9	34.1	53.3	9.7	.4	5.3	73.9	1.2	9.5	1.2	7,328	13,190	------	193	----
			2	-----	35.1	55.0	9.9	.4	5.1	76.1	1.2	7.3	-----	7,544	13,580	------	------	----
			3	-----	39.0	61.0	-----	.5	5.7	84.5	1.4	7.9	-----	8,378	15,080	------	------	----
4½ miles northeast of; in Acton basin, Thompson bed (prospect, lower bench near mouth of slope).	3769	B	1	3.6	33.2	58.6	4.6	1.1	5.1	77.6	1.2	10.4	2.0	7,806	14,050	------	22	----
			2	-----	34.4	60.9	4.7	1.1	4.9	80.5	1.3	7.5	-----	8,094	14,570	------	------	----
			3	-----	36.1	63.9	-----	1.2	5.2	84.5	1.3	7.8	-----	8,500	15,300	------	------	----
5 miles northeast of; Acton No. 2 mine, Helena bed (68-inch cut).	3771	B	1	2.7	33.3	58.3	5.7	.4	5.2	78.0	1.5	9.2	.9	7,772	13,990	------	22	----
			2	-----	34.3	59.8	5.9	.5	5.0	80.2	1.6	6.8	-----	7,994	14,390	------	------	----
			3	-----	36.4	63.6	-----	.5	5.4	85.2	1.7	7.2	-----	8,489	15,280	------	------	----
Same (face of 5 right entry)	18288	A	1	2.4	35.5	54.3	7.8	.4	-----	-----	-----	-----	.8	7,517	13,530	2,230	123	----
Same (face of 16 room, 8 right entry)	18289	A	1	2.4	34.9	54.5	8.2	.5	-----	-----	-----	-----	.9	7,528	13,550	2,500	123	----
Same (face of 8 left entry)	18290	A	1	2.0	36.1	55.0	6.9	.6	-----	-----	-----	-----	.5	7,628	13,730	2,360	123	----
Same (composite of samples 18288 to 18290, inclusive).	18291	A	1	2.2	35.6	54.6	7.6	.6	5.2	70.8	1.5	8.3	.7	7,567	13,620	------	123	----
			2	-----	36.4	55.8	7.8	.6	5.1	78.5	1.5	6.5	-----	7,733	13,920	------	------	----
			3	-----	39.4	60.6	-----	.6	5.5	85.2	1.6	7.1	-----	8,389	15,100	------	------	----
5 miles southwest of; Mossboro mine, Gholson (black shale) bed (face of 1 right entry, 300 feet from slope).	85800	A	1	8.4	32.3	56.8	2.5	.6	-----	-----	-----	-----	7.0	7,533	13,560	2,060	------	8
Same (face of 1 left entry, 120 feet from slope)	85801	A	1	5.2	33.9	58.7	2.2	.6	-----	-----	-----	-----	3.8	7,822	14,080	2,110	------	----
Same (last crosscut between slope and right air course, 470 feet from slope).	85802	A	1	4.6	35.1	57.9	2.4	.6	-----	-----	-----	-----	3.2	7,894	14,210	2,060	------	----
Same (composite of samples 85800 to 85802, inclusive).	85803	A	1	6.0	33.8	57.9	2.3	.6	5.8	78.4	1.5	11.4	4.7	7,772	13,990	------	------	----
			2	-----	36.0	61.5	2.5	.6	5.4	83.4	1.6	6.5	-----	8,261	14,870	------	------	----
			3	-----	36.9	63.1	-----	.6	5.6	85.5	1.6	6.7	-----	8,472	15,250	------	------	----
Maylene, 1½ miles southwest of; Climax mine, Maylene bed (face of 14 west heading).	9610	B	1	3.3	32.2	55.9	8.6	.4	5.0	74.3	1.1	10.6	1.7	7,317	13,170	2,380	22	----
			2	-----	33.3	57.8	8.9	.4	4.8	76.8	1.2	7.9	-----	7,561	13,610	------	------	----
			3	-----	36.5	63.5	-----	.5	5.3	84.3	1.3	8.6	-----	8,306	14,950	------	------	----
Maylene mine (face of G heading)	26301	A	1	3.5	35.8	51.2	9.5	.5	-----	-----	-----	-----	2.1	7,194	12,950	2,190	193	----
Same (face of 19 west entry)	26302	A	1	2.8	36.7	53.5	7.0	.4	-----	-----	-----	-----	1.4	7,428	13,370	2,380	193	----

Same (face of 11 room, 15 east heading)	26303	A	1	2.9	37.0	53.4	6.7	.5	-----	-----	-----	-----	1.4	7,517	13,530	2,470	193	----
Same (face of 21 room, 12 west heading)	26304	A	1	2.8	37.1	53.6	6.5	.5	-----	-----	-----	-----	1.4	7,572	13,630	2,220	193	----
Same (composite of samples 26301 to 26304, inclusive).	26305	A	1	3.0	36.6	53.0	7.4	.4	4.9	74.7	1.2	11.4	1.6	7,433	13,380	------	193	----
			2	-----	37.7	54.7	7.6	.5	4.8	77.0	1.2	8.9	-----	7,667	13,800	------	------	----
			3	-----	40.8	59.2	-----	.5	5.1	83.4	1.3	9.7	-----	8,294	14,930	------	------	----
Roebuck, 1,000 feet southeast of; No. 4 Roebuck mine, Thompson bed (face of 40 room, 6 left heading).	80483	A	1	2.2	32.0	59.8	6.0	1.1	-----	-----	-----	-----	.5	7,678	13,820	2,110	------	82
Same (face of 7 room, 7 right heading)	80484	A	1	2.1	32.2	57.7	8.0	1.3	-----	-----	-----	-----	.4	7,472	13,450	2,060	------	----
Same (face of 5 right heading)	80485	A	1	3.5	31.3	58.2	7.0	1.3	-----	-----	-----	-----	1.7	7,411	13,340	2,130	------	----
Same (face of 68 room, 4 left heading)	80486	A	1	2.2	31.5	53.1	13.2	1.2	-----	-----	-----	-----	.6	6,978	12,560	2,260	------	----
Same (composite of samples 80483 to 80486, inclusive).	80487	A	1	2.4	31.8	57.2	8.6	1.2	5.2	75.1	1.3	8.6	.8	7,356	13,240	------	------	----
			2	-----	32.6	58.6	8.8	1.2	5.1	77.0	1.3	6.6	-----	7,539	13,570	------	------	----
			3	-----	35.7	64.3	-----	1.4	5.5	84.4	1.5	7.2	-----	8,261	14,870	------	------	----
Straven; Straven mine, Montevallo bed (face of 5 room, 5 west heading, 900 feet from mine mouth).	9611	B	1	3.8	32.0	58.7	5.5	1.0	5.3	77.3	1.3	9.6	2.2	7,667	13,800	2,290	22	----
			2	-----	33.3	61.0	5.7	1.0	5.1	80.3	1.3	6.6	-----	7,972	14,350	------	------	----
			3	-----	35.3	64.7	-----	1.1	5.4	85.2	1.4	6.9	-----	8,450	15,210	------	------	----
Same (face of 15 room, 5 east heading)	9612	B	1	3.8	31.4	54.2	10.6	.7	-----	-----	-----	-----	2.1	7,161	12,890	2,200	22	----
			2	-----	32.6	56.5	10.9	.7	-----	-----	-----	-----	-----	7,444	13,400	------	------	----
Upper Straven bed (near end of slope, 36½-inch cut).	14391	B	1	3.1	35.6	53.3	8.0	.6	-----	-----	-----	-----	1.0	7,317	13,170	2,490	85	----
			2	-----	36.8	55.0	8.2	.6	-----	-----	-----	-----	-----	7,550	13,590	------	------	----
Same (position same as sample 14391, 13½-inch cut).	14392	B	1	3.6	36.8	53.2	6.4	1.1	-----	-----	-----	-----	1.4	7,506	13,510	2,200	85	----
			2	-----	38.2	55.1	6.7	1.1	-----	-----	-----	-----	-----	7,783	14,010	------	------	----
¼ mile north of; Straven mine, Montevallo bed (face of 12 right heading).	81933	A	1	3.1	34.8	54.3	7.8	.8	-----	-----	-----	-----	1.8	7,400	13,320	2,090	------	82
Same (face of 10 right heading)	81934	A	1	2.3	35.0	53.0	9.7	1.0	-----	-----	-----	-----	1.0	7,344	13,220	2,010	------	----
Same (face of 9 left entry)	81935	A	1	2.6	35.6	54.8	7.0	.8	-----	-----	-----	-----	1.2	7,550	13,590	2,060	------	----
Same (face of 17 room, 6 left entry)	81936	A	1	2.8	35.6	55.9	5.7	1.0	-----	-----	-----	-----	1.5	7,661	13,790	2,180	------	----
Same (face of 6 right entry)	81937	A	1	2.8	35.1	53.7	8.4	.9	-----	-----	-----	-----	1.5	7,406	13,330	2,170	------	----
Same (composite of samples 81933 to 81937, inclusive).	81938	A	1	2.7	35.0	54.6	7.7	.9	5.3	75.8	1.3	9.0	1.4	7,483	13,470	------	------	----
			2	-----	36.0	56.0	8.0	.9	5.1	77.9	1.4	6.7	-----	7,694	13,850	------	------	----
			3	-----	39.1	60.9	-----	1.0	5.6	84.6	1.5	7.3	-----	8,361	15,050	------	------	----
½ mile south of; Straven mine, Helena bed (2 cross-cut, main slope, 125 feet from mine mouth).	81928	A	1	4.7	33.4	53.5	8.4	.7	5.5	73.7	1.3	10.4	3.7	7,317	13,170	2,680	------	83
			2	-----	35.0	56.2	8.8	.7	5.2	77.3	1.4	6.6	-----	7,678	13,820	------	------	----
			3	-----	38.4	61.6	-----	.8	5.7	84.8	1.5	7.2	-----	8,422	15,160	------	------	----
Sydenton, 1 mile west of; Star-Cahaba (Elvira) No. 1 mine, Gould bed (4-foot cut).	3646	B	1	2.1	28.2	61.5	8.2	2.0	-----	-----	-----	-----	.8	------	-------	------	22	----
			2	-----	28.7	62.9	8.4	2.0	-----	-----	-----	-----	-----	------	-------	------	------	----
Tacoa, 1 mile west of; Star-Cahaba No. 2 mine, Wadsworth bed (entrance of mine, weathered coal, 3-foot cut).	3770	B	1	3.7	33.7	58.8	3.8	.5	5.5	80.1	1.5	8.6	2.4	7,978	14,360	------	22	----
			2	-----	35.0	61.1	3.9	.5	5.3	83.2	1.6	5.5	-----	8,278	14,900	------	------	----
			3	-----	36.4	63.6	-----	.5	5.5	86.5	1.6	5.9	-----	8,611	15,500	------	------	----
TUSCALOOSA COUNTY																		
Abernant; Abernant mine, Jagger bed	2538	B	1	1.6	25.0	68.5	4.9	.5	-----	-----	-----	-----	.8	8,167	14,700	------	22	----
			2	-----	25.4	69.6	5.0	.5	-----	-----	-----	-----	-----	8,300	14,940	------	------	----
Same (face of 13 right entry)	14717	A	1	2.6	24.2	64.1	9.1	.6	4.7	77.5	1.5	6.6	1.8	7,628	13,730	2,930	85	----
			2	-----	24.8	65.9	9.3	.7	4.6	79.6	1.5	4.3	-----	7,833	14,100	------	------	----
			3	-----	27.4	72.6	-----	.7	5.0	87.8	1.7	4.8	-----	8,639	15,500	------	------	----
Brookwood; Brookwood No. 7 mine, Milldale bed (12 west entry).	1186	B	1	2.0	31.6	60.9	5.5	1.1	-----	-----	-----	-----	1.5	7,978	14,360	------	22	----
			2	-----	32.2	62.2	5.6	1.1	-----	-----	-----	-----	-----	8,139	14,650	------	------	----
Brookwood No. 10 mine, Carter bed (34-inch cut)	1187	B	1	3.9	30.8	59.6	5.7	.8	-----	-----	-----	-----	3.4	------	-------	------	22	----
			2	-----	32.0	62.1	5.9	.8	-----	-----	-----	-----	-----	------	-------	------	------	----
Brookwood No. 12 mine, Brookwood bed (face of 1 right heading)	1185	B	1	2.8	28.7	52.2	16.3	1.3	-----	-----	-----	-----	2.2	------	-------	------	22	----
			2	-----	29.5	53.8	16.7	1.3	-----	-----	-----	-----	-----	------	-------	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate						Calorific value			Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Air-drying loss	Calories	B. t. u.	Softening temperature (° F.)	Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TUSCALOOSA COUNTY—Continued																		
Brookwood, Valley mine, Carter bed (face of 1 right heading, No. 9 opening).	82260	A	1	3.4	30.6	59.7	6.3	0.9	-----	-----	-----	-----	2.5	7,667	13,800	2,850	------	84
Same (face of 3 room, 2 left heading, No. 9 opening).	82261	A	1	3.2	31.1	59.9	5.8	.9	-----	-----	-----	-----	2.4	7,789	14,020	2,800	------	----
Same (face of 2 right heading, No. 9 opening)	82262	A	1	1.8	28.4	58.3	11.5	1.0	-----	-----	-----	-----	1.0	7,383	13,290	2,540	------	----
Milldale bed (face of left entry, No. 25 opening)	82263	A	1	2.7	31.5	60.6	5.2	1.2	-----	-----	-----	-----	1.8	7,878	14,180	2,450	------	----
Same (face of main heading, No. 24 opening)	82264	A	1	3.2	31.4	60.1	5.3	1.1	-----	-----	-----	-----	2.4	7,861	14,150	2,390	------	----
Same (composite of samples 82260 to 82264, inclusive).	82265	A	1	2.8	30.3	60.2	6.7	1.0	5.2	78.0	1.4	7.7	2.0	7,717	13,890	------	------	----
			2	-----	31.2	61.9	6.9	1.0	5.1	80.2	1.5	5.3	-----	7,939	14,290	------	------	----
			3	-----	33.5	66.5	-----	1.1	5.4	86.2	1.6	5.7	-----	8,528	15,350	------	------	----
½ mile northeast of; New Slope mine, Brookwood bed (face of 5 left heading).	82266	A	1	2.2	28.1	55.8	13.9	.9	-----	-----	-----	-----	1.3	7,067	12,720	2,850	------	84
Same (face of 6 left heading)	82267	A	1	2.5	29.5	55.5	12.5	1.0	-----	-----	-----	-----	1.8	7,144	12,860	2,850	------	----
Same (face of main heading)	82268	A	1	3.7	28.3	54.9	13.1	1.1	-----	-----	-----	-----	3.0	7,067	12,720	2,850	------	----
Milldale bed (face of 2 left north heading)	82269	A	1	2.3	31.7	59.9	6.1	1.1	-----	-----	-----	-----	1.7	7,817	14,070	2,540	------	----
Same (face of 10 left heading)	82270	A	1	1.8	31.3	62.9	4.0	.9	-----	-----	-----	-----	1.3	8,072	14,530	2,680	------	----
Same (face of main south heading)	82271	A	1	2.2	30.8	63.5	3.5	.8	-----	-----	-----	-----	1.6	8,028	14,450	2,800	------	----
Same (composite of samples 82266 to 82271, inclusive).	82272	A	1	2.5	29.5	59.1	8.9	.9	5.1	76.7	1.4	7.0	1.8	7,567	13,620	------	------	----
			2	-----	30.3	60.6	9.1	1.0	5.0	78.7	1.5	4.7	-----	7,761	13,970	------	------	----
			3	-----	33.3	66.7	-----	1.1	5.5	86.6	1.6	5.2	-----	8,533	15,360	------	------	----
Coaling, 2½ miles southwest of; Cedar Cove No. 1 mine, Milldale bed (face of 12 left heading).	86422	A	1	5.1	31.9	54.4	8.6	2.2	-----	-----	-----	-----	3.9	7,244	13,040	2,240	------	85
Same (face of 16 right heading)	86423	A	1	3.8	32.9	57.0	6.3	2.7	-----	-----	-----	-----	2.6	7,556	13,600	2,090	------	----
Same (face of 15 right heading)	86424	A	1	3.5	33.7	57.8	5.0	2.0	-----	-----	-----	-----	2.3	7,700	13,860	2,130	------	----
Same (composite of samples 86422 to 86424, inclusive).	86425	A	1	4.1	33.3	56.0	6.6	2.3	5.4	75.2	1.2	9.3	2.9	7,500	13,500	------	------	----
			2	-----	34.7	58.4	6.9	2.4	5.1	78.4	1.3	5.9	-----	7,817	14,070	------	------	----
			3	-----	37.4	62.6	-----	2.6	5.5	84.3	1.4	6.2	-----	8,411	15,140	------	------	----
Cedar Cove No. 2 mine, Milldale or Cedar Cove bed (face of 1 left heading).	86421	A	1	4.6	33.0	58.3	4.1	2.1	5.6	77.0	1.4	9.8	3.3	7,661	13,790	2,220	------	85
			2	-----	34.6	61.1	4.3	2.2	5.3	80.7	1.4	6.1	-----	8,028	14,450	------	------	----
			3	-----	36.2	63.8	-----	2.3	5.5	84.3	1.5	6.4	-----	8,389	15,100	------	------	----
Kellerman; Central drift, Brookwood bed (71½-inch cut)	1164	B	1	3.8	30.2	56.0	10.0	1.5	-----	-----	-----	-----	2.8	------	-------	------	22	----
			2	-----	31.4	58.2	10.4	1.6	-----	-----	-----	-----	-----	------	-------	------	------	----

Rock Castle; Rock Castle mine, Jagger bed (500 feet from mine mouth).	2539	B	1	1.7	26.4	65.0	6.9	.9	-----	-----	-----	-----	.7	------	-------	------	22	----
			2	-----	26.8	66.1	7.1	.9	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (face of 17 room, 18 right entry)	18510	A	1	2.9	25.6	62.9	8.6	.6	-----	-----	-----	-----	2.4	7,656	13,780	2,550	123	----
Same (face of 26 room, 17 right entry)	18511	A	1	2.6	26.0	63.7	7.7	.6	-----	-----	-----	-----	2.1	7,767	13,980	2,450	123	----
Same (face of 1 room, 19 left entry)	18512	A	1	2.6	26.4	61.4	9.6	.7	-----	-----	-----	-----	2.0	7,611	13,700	2,640	123	----
Same (composite of samples 18510 to 18512, inclusive).	18513	A	1	2.7	25.8	62.8	8.7	.7	4.9	78.6	1.6	5.5	2.1	7,689	13,840	------	123	----
			2	-----	26.5	64.6	8.9	.7	4.7	80.8	1.6	3.3	-----	7,906	14,230	------	------	----
			3	-----	29.1	70.9	-----	.8	5.2	88.7	1.8	3.5	-----	8,678	15,620	------	------	----
Searles; Slope mine, Brookwood bed (face of 25 room, 2 left south entry).	82448	A	1	5.7	27.8	58.0	8.5	.8	-----	-----	-----	-----	4.9	7,356	13,240	2,910	------	85
Same (face of 30 room, 5 right entry)	82449	A	1	3.9	28.7	56.6	10.8	1.1	-----	-----	-----	-----	3.2	7,311	13,160	2,800	------	----
Same (face of 13 room, 8 right entry)	82450	A	1	5.3	27.9	57.2	9.6	1.0	-----	-----	-----	-----	4.6	7,256	13,060	------	------	----
Same (face of 13 room, 6 left entry)	82451	A	1	3.6	29.1	57.6	9.7	1.1	-----	-----	-----	-----	2.8	7,394	13,310	------	------	----
Same (composite of samples 82448 to 82451, inclusive).	82452	A	1	4.6	28.6	57.3	9.5	.9	5.3	73.7	1.5	9.1	3.9	7,317	13,170	------	------	----
			2	-----	29.9	60.1	10.0	.9	5.0	77.2	1.6	5.3	-----	7,672	13,810	------	------	----
			3	-----	33.3	66.7	-----	1.0	5.5	85.8	1.8	5.9	-----	8,522	15,340	------	------	----
Milldale bed (face of 25 room, 2 left south entry)	82453	A	1	4.9	29.5	60.4	5.2	1.0	-----	-----	-----	-----	4.3	7,733	13,920	------	------	----
Same (face of 30 room, 5 right entry)	82454	A	1	4.0	29.0	60.7	6.3	1.2	-----	-----	-----	-----	3.4	7,723	13,900	------	------	----
Same (face of 13 room, 8 right entry)	82455	A	1	4.8	30.4	60.3	4.5	.8	-----	-----	-----	-----	3.1	7,806	14,050	------	------	----
Same (face of 18 room, 6 left entry)	82456	A	1	3.9	31.4	61.1	3.6	.8	-----	-----	-----	-----	3.3	7,939	14,290	------	------	----
Same (composite of samples 82453 to 82456, inclusive).	82457	A	1	4.4	30.8	59.9	4.9	1.0	5.5	77.9	1.5	9.2	3.8	7,806	14,050	------	------	----
			2	-----	32.3	62.6	5.1	1.1	5.2	81.5	1.6	5.5	-----	8,167	14,700	------	------	----
			3	-----	34.0	66.0	-----	1.1	5.5	85.9	1.6	5.9	-----	8,606	15,490	------	------	----
Brookwood and Milldale beds (face of 25 room, 2 left south entry).	82443	A	1	4.0	30.0	58.5	7.5	1.2	-----	-----	-----	-----	3.3	7,583	13,650	2,800	------	85
Same (face of 30 room, 5 right entry)	82444	A	1	3.8	28.8	59.0	8.4	.8	-----	-----	-----	-----	3.1	7,494	13,490	2,800	------	----
Same (face of 13 room, 8 right entry)	82445	A	1	3.9	30.2	58.2	7.7	.8	-----	-----	-----	-----	3.3	7,539	13,570	2,800	------	----
Same (face of 18 room, 6 left entry)	82446	A	1	3.7	29.3	59.2	7.8	.8	-----	-----	-----	-----	3.0	7,544	13,580	2,800	------	----
Same (composite of samples 82443 to 82446, inclusive).	82447	A	1	3.8	28.9	59.5	7.8	.9	5.4	76.1	1.5	8.3	3.2	7,528	13,550	------	------	----
			2	-----	30.1	61.8	8.1	1.0	5.1	79.2	1.5	5.1	-----	7,833	14,100	------	------	----
			3	-----	32.7	67.3	-----	1.1	5.6	86.2	1.6	5.5	-----	8,522	15,340	------	------	----
1 mile southwest of; Aetna No. 3 mine, Brookwood bed (face of 5 right heading).	82299	A	1	2.7	28.1	58.1	11.1	1.3	-----	-----	-----	-----	1.8	7,350	12,230	2,850	------	87
Same (face of 5 left heading)	82302	A	1	3.0	28.3	60.0	8.7	1.2	-----	-----	-----	-----	2.2	7,517	13,530	2,910	------	----
Same (composite of samples 82299 and 82302)	83216	A	1	2.5	28.9	58.7	9.9	1.2	4.9	75.4	1.5	7.1	2.0	7,428	13,370	------	------	----
			2	-----	29.7	60.1	10.2	1.2	4.8	77.4	1.5	4.9	-----	7,622	13,720	------	------	----
			3	-----	33.0	67.0	-----	1.4	5.3	86.1	1.7	5.5	-----	8,489	15,280	------	------	----
Milldale bed (face of 5 right heading)	82300	A	1	2.7	30.6	64.0	2.7	.7	-----	-----	-----	-----	2.0	8,128	14,630	2,540	------	----
Same (face of 5 left heading)	82303	A	1	3.8	29.4	63.5	3.3	1.0	-----	-----	-----	-----	3.0	7,994	14,390	2,510	------	----
Same (composite of samples 82300 and 82303)	83217	A	1	3.0	30.0	63.9	3.1	.8	5.4	81.8	1.5	7.4	2.5	8,072	14,530	------	------	----
			2	-----	31.0	65.8	3.2	.8	5.2	84.4	1.6	4.8	-----	8,322	14,980	------	------	----
			3	-----	32.0	68.0	-----	.9	5.4	87.1	1.6	5.0	-----	8,594	15,470	------	------	----
Brookwood and Milldale beds (face of 5 right heading).	82301	A	1	2.7	29.0	59.1	9.2	1.1	-----	-----	-----	-----	1.8	7,528	13,550	2,850	------	----
Same (face of 5 left heading)	82304	A	1	3.2	28.7	60.3	7.8	1.1	-----	-----	-----	-----	2.4	7,572	13,630	2,850	------	----
Same (face of 4 right heading)	82305	A	1	3.5	29.1	57.2	10.2	1.3	-----	-----	-----	-----	2.7	7,383	13,290	2,910	------	----
Same (face of 6 room, 3 left heading)	82306	A	1	2.6	29.8	56.7	10.9	1.5	-----	-----	-----	-----	1.8	7,356	13,240	2,800	------	----
Same (composite of samples 82301, 82304 to 82306, inclusive).	83218	A	1	2.7	28.7	59.0	9.6	1.2	5.1	75.6	1.5	7.0	2.2	7,472	13,450	------	------	----
			2	-----	29.5	60.6	9.9	1.2	4.9	77.7	1.5	4.8	-----	7,678	13,820	------	------	----
			3	-----	32.7	67.3	-----	1.3	5.5	86.2	1.7	5.3	-----	8,517	15,330	------	------	----
Searles mine, Brookwood bed (face of 3 room, 7 left heading).	1210	B	1	2.4	32.4	58.1	7.1	1.4	-----	-----	-----	-----	1.3	------	-------	------	22	----
			2	-----	33.1	59.6	7.3	1.4	-----	-----	-----	-----	-----	------	-------	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate					Air-drying loss	Calorific value		Softening temperature (° F.)	Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen		Calories	B. t. u.		Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TUSCALOOSA COUNTY—Continued																		
Tidewater; Tidewater mine, Brookwood bed (600 feet from mine mouth, 37½-inch cut).	1593	B	1	2.1	34.7	51.6	11.6	1.6	-----	-----	-----	-----	0.8	------	-------	------	22	----
			2	-----	35.4	52.8	11.8	1.6	-----	-----	-----	-----	-----	------	-------	------	------	----
Yolande; Yolande No. 1 mine, Jagger bed (face of main entry, 250 feet from mine mouth).	2543	B	1	3.2	23.2	64.1	9.5	.8	-----	-----	-----	-----	1.8	------	-------	------	22	----
			2	-----	24.0	66.2	9.8	.8	-----	-----	-----	-----	-----	------	-------	------	------	----
Yolande No. 4 mine, Blue Creek bed (face of 3 right heading).	80478	A	1	4.2	23.7	63.7	8.4	.6	-----	-----	-----	-----	3.3	7,506	13,510	2,910	------	87
Same (face of 6 right heading)	80479	A	1	3.9	24.4	62.3	9.4	.7	-----	-----	-----	----	2.9	7,483	13,470	2,680	------	----
Same (face of slope)	80480	A	1	5.6	23.3	61.9	9.2	.6	-----	-----	-----	-----	4.7	7,367	13,260	2,790	------	----
Same (face of 7 right heading)	80481	A	1	4.9	24.3	61.7	9.1	.6	-----	-----	-----	-----	4.1	7,406	13,330	2,680	------	----
Same (composite of samples 80478 to 80481, inclusive).	80482	A	1	4.6	23,9	62.5	9.0	.6	5.0	75.4	1.5	8.5	3.8	7,461	13,430	------	------	----
			2	-----	25.1	65.4	9.5	.7	4.8	79.1	1.6	4.3	-----	7,822	14,080	------	------	----
			3	-----	27.7	72.3	-----	.7	5.3	87.3	1.7	5.0	-----	8,639	15,550	------	------	----
WALKER COUNTY																		
America Junction, 2 miles south of; Aldridge or Stith mine, America bed (face of 9 left entry, main north entry, No. 5 opening).	79363	A	1	2.9	34.9	56.1	6.1	1.3	-----	-----	-----	-----	1.3	7,583	13,650	2,740	------	88
Same (face of 12 left entry, main north entry, No. 5 opening).	79364	A	1	2.9	35.6	55.0	6.5	1.4	-----	-----	-----	-----	1.2	7,533	13,560	2,740	------	----
Same (face of 6 right entry, main north entry, No. 2 opening).	79365	A	1	2.5	34.2	52.9	10.4	1.6	-----	-----	-----	-----	1.2	7,222	13,000	2,910	------	----
Same (75 feet outby face, new 5 right entry, No. 2 opening).	79366	A	1	2.8	34.3	53.5	9.4	2.0	-----	-----	-----	-----	1.4	7,283	13,110	2,590	------	----
Same (composite of samples 79363 to 79366, inclusive).	79367	A	1	2.8	34.7	54.4	8.1	1.6	5.3	74.8	1.7	8.5	1.3	7,411	13,340	------	------	----
			2	-----	35.7	56.0	8.3	1.6	5.1	76.9	1.8	6.3	-----	7,622	13,720	------	------	----
			3	-----	38.9	61.1	-----	1.8	5.6	83.9	1.9	6.8	-----	8,317	14,970	------	------	----
Bankhead; Bankhead mine, Mary Lee bed (500 feet outby face of main south entry).	79350	A	1	3.6	32.1	50.2	14.1	.7	-----	-----	-----	-----	1.6	6,733	12,120	2,790	------	89
Same (face of A heading, main south entry)	79351	A	1	3.6	33.3	51.4	11.7	.8	-----	-----	-----	-----	1.9	6,972	12,550	2,560	------	----
Same (100 feet outby face, main north entry)	79352	A	1	3.9	32.0	52.8	11.3	.8	-----	-----	-----	-----	2.2	6,950	12,510	2,700	------	----
Same (composite of samples 79350 to 79353, inclusive).	79353	A	1	3.5	33.5	48.9	14.1	.5	-----	-----	-----	-----	1.8	6,744	12,140	2,560	------	----
	79354	A	1	3.7	32.4	51.0	12.9	.7	5.0	69.5	1.6	10.3	1.9	6,844	12,320	------	------	----
			2	-----	33.6	53.0	13.4	.7	4.8	72.2	1.7	7.2	-----	7,111	12,800	------	------	----
			3	-----	38.8	61.2	-----	.8	5.5	83.3	2.0	8.4	-----	8,206	14,770	------	------	----

Benoit; Benoit mine, Mary Lee bed (upper bench, face of 1 left entry, 3 right entry).	81951	A	1	2.9	31.4	51.5	14.2	1.0	-----	-----	-----	-----	1.8	6,817	12,270	2,850	------	89
Same face of main heading)	81952	A	1	3.7	30.2	53.9	12.2	.6	-----	-----	-----	-----	2.5	6,911	12,440	2,850	------	----
Same (face of 2 main entry)	81953	A	1	3.0	31.8	49.6	15.6	1.6	-----	-----	-----	-----	1.8	6,694	12,050	2,800	------	----
Same (face of new slope heading)	81954	A	1	2.9	29.6	50.5	17.0	.8	-----	-----	-----	-----	1.7	6,566	11,800	2,850	------	----
Same (composite of samples 81951 to 81954, inclusive).	81955	A	1	3.2	30.5	51.6	14.7	1.0	5.0	68.4	1.5	9.4	2.0	6,750	12,150	------	------	----
			2	-----	31.5	53.3	15.2	1.1	4.8	70.6	1.6	6.7	-----	6,967	12,540	------	------	----
			3	-----	37.2	62.8	-----	1.2	5.6	83.3	1.8	8.1	-----	8,216	14,790	------	------	----
Calumet, 3½ miles south of Jasper; Calumet mine, Mary Lee bed (face of 2 west entry, main south entry).	79344	A	1	3.6	33.5	50.9	12.0	.8	-----	-----	-----	-----	1.7	6,928	12,470	2,560	------	90
Same (face of main south entry)	79345	A	1	3.7	31.5	48.1	16.7	.7	-----	-----	-----	-----	1.8	6,478	11,660	2,790	------	----
Same (face of 3 east entry, main south entry)	79346	A	1	4.0	32.6	50.5	12.9	.8	-----	-----	-----	-----	2.2	6,811	12,260	2,640	------	----
Same (face of 4 main entry, main north entry)	79347	A	1	3.9	31.8	51.6	12.7	.7	-----	-----	-----	-----	2.0	6,833	12,300	2,620	------	----
Same (face of main north entry)	79348	A	1	4.0	33.2	51.8	11.0	.6	-----	-----	-----	-----	2.0	6,956	12,520	2,740	------	----
Same (composite of samples 79344 to 79348, inclusive).	79349	A	1	3.9	32.1	51.0	13.0	.7	5.0	69.0	1.6	10.7	2.0	6,822	12,280	------	------	----
			2	-----	33.4	53.0	13.6	.8	4.8	71.8	1.7	7.3	-----	7,100	12,780	------	------	----
			3	-----	38.6	61.4	-----	.9	5.5	83.1	2.0	8.5	-----	8,217	14,790	------	------	----
Carbon Hill, ¾ mile northwest of; Chickasaw No. 5 mine, Jagger bed (3 west entry, main north entry).	1075	A	1	2.3	35.7	53.0	9.0	1.1	-----	-----	-----	-----	-----	7,294	13,130	------	22	----
			2	-----	36.5	54.2	9.3	1.1	-----	-----	-----	-----	-----	7,467	13,440	------	------	----
Same (4 east entry, 1,200 feet from foot of slope)	1076	A	1	2.4	34.8	51.7	11.1	1.1	-----	-----	-----	-----	-----	7,056	12,700	------	22	----
			2	-----	35.7	52.9	11.4	1.1	-----	-----	-----	-----	-----	7,228	13,010	------	------	----
Same (3 left entry, main north entry, 3,500 feet northeast of slope).	3011	A	1	4.7	31.8	53.3	10.2	1.3	-----	-----	-----	-----	2.7	7,000	12,600	------	22	----
			2	-----	33.4	55.9	10.7	1.4	-----	-----	-----	-----	-----	7,344	13,220	------	------	----
Same (1 north entry, old west entry, 3,500 feet north of slope).	3012	A	1	4.5	31.8	54.8	8.9	1.5	-----	-----	-----	-----	-----	------	------	------	22	----
			2	-----	33.3	57.4	9.3	1.6	-----	-----	-----	-----	-----	------	------	------	------	----
1 mile southwest of; Galloway No. 11 mine, Jagger bed (face of 1 room, 2 left face heading, 3 left entry)	24954	A	1	4.4	33.5	52.5	9.6	.6	-----	-----	-----	-----	1.8	7,022	12,640	2,910	123	----
Same (face of 7 right entry)	24955	A	1	4.3	34.2	52.1	9.4	.7	-----	-----	-----	-----	1.7	7,028	12,650	2,390	123	----
Same (face of 2 room, 1 right face heading, 3 right entry).	24956	A	1	4.3	32.1	49.7	13.9	.7	-----	-----	-----	-----	1.8	6,656	11,980	2,640	123	----
Same (face of slope)	24957	A	1	4.3	33.5	52.2	10.0	.7	-----	-----	-----	-----	1.8	6,989	12,580	2,440	123	----
Same (composite of samples 24954 to 24957, inclusive).	24958	A	1	4.4	33.2	51.7	10.7	.7	5.1	69.6	1.6	12.3	1.8	6,933	12,480	------	123	----
			2	-----	34.7	54.1	11.2	.7	4.8	72.7	1.7	8.9	-----	7,250	13,050	------	------	----
			3	-----	39.1	60.9	-----	.8	5.5	81.9	1.9	9.9	-----	8,167	14,700	------	------	----
Same (face of 7 right slope)	79608	A	1	3.2	34.7	49.7	12.4	.9	-----	-----	-----	-----	1.2	6,856	12,340	2,870	------	91
Same (face of 3 right entry, 7 right slope)	79609	A	1	3.5	34.5	51.9	10.1	.8	-----	-----	-----	-----	1.6	7,033	12,660	2,850	------	----
Same (face of 4 right entry, main west entry)	79610	A	1	6.7	33.4	50.5	9.4	.7	-----	-----	-----	-----	4.4	6,844	12,320	2,850	------	----
Same (face of 2 right entry, main west entry)	79611	A	1	4.0	34.5	52.0	9.5	.7	-----	-----	-----	-----	1.8	7,078	12,740	2,850	------	----
Same (face of southwest slope)	79612	A	1	3.6	33.2	51.3	11.9	.9	-----	-----	-----	-----	1.4	6,889	12,400	2,790	------	----
Same (composite of samples 79609 to 79612, inclusive).	79613	A	1	4.3	33.9	51.1	10.7	.8	5.2	69.6	1.6	12.1	2.1	6,944	12,500	------	------	----
			2	-----	35.4	53.4	11.2	.8	4.9	72.7	1.7	8.7	-----	7,256	13,060	------	------	----
			3	-----	39.8	60.2	-----	.9	5.5	81.9	1.9	9.8	-----	8,167	14,700	------	------	----
Same (face of 7 right slope, cannel coal	79614	A	1	2.7	29.7	43.7	23.9	.5	4.4	60.7	1.1	9.4	1.2	5,933	10,680	3,000	------	----
			2	-----	30.5	44.9	24.6	.5	4.2	62.4	1.2	7.1	-----	6,100	10,980	------	------	----
			3	-----	40.5	59.5	-----	.7	5.6	82.7	1.5	9.5	-----	8,089	14,560	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate						Calorific value			Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Air-drying loss	Calories	B. t. u.	Softening temperature (° F.)	Bulletin No.	Page
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
WALKER COUNTY—Continued																		
Coal Valley, Coal Valley mine, Corona bed (face of 3 room, 15 right entry) (Cowhide).	80265	A	1	2.8	39.5	48.9	8.8	2.0	-----	-----	-----	-----	1.0	7,272	13,090	2,340	------	91
Same (face of 3 room, 10 right entry) (Gum log)	80266	A	1	2.3	39.6	48.3	9.8	2.6	-----	-----	-----	-----	1.0	7,139	12,850	2,440	------	----
Same (face of 3 room, 10 right entry, No. 11 opening).	80267	A	1	2.6	35.8	50.4	11.2	2.3	-----	-----	-----	-----	1.2	7,000	12,600	2,230	------	----
Same (face of 11 room, 15 right entry) (Cowhide)	80268	A	1	2.6	36.0	52.5	8.9	2.2	-----	-----	-----	-----	1.5	7,200	12,960	2,440	------	----
Same (composite of samples 80265 to 80268, inclusive).	80269	A	1	2.4	38.9	49.0	9.7	2.3	5.4	71.3	1.7	9.6	1.2	7,156	12,880	------	------	----
			2	-----	39.9	50.2	9.9	2.3	5.3	73.1	1.7	7.7	-----	7,333	13,200	------	------	----
			3	-----	44.3	55.7	-----	2.6	5.9	81.2	1.9	8.4	-----	8,144	14,660	------	------	----
Cordova, 1 mile northeast of; Mount Carmel No. 1 mine, Mary Lee bed (top bench, face of 3 right entry).	87111	A	1	3.9	30.4	55.3	10.4	.6	-----	-----	-----	-----	2.2	7,044	12,680	2,800	------	93
Same (face of 4 right entry)	87112	A	1	4.0	30.1	54.4	11.5	.6	-----	-----	-----	-----	2.3	6,950	12,510	2,800	------	----
Same (face of 1 right entry)	87113	A	1	3.9	31.0	53.2	11.9	.6	-----	-----	-----	-----	2.3	6,889	12,400	2,850	------	----
Same (composite of samples 87111 to 87113, inclusive).	87114	A	1	3.9	30.6	54.2	11.3	.6	5.1	70.7	1.6	10.7	2.3	6,944	12,500	------	------	----
			2	-----	31.8	56.4	11.8	.6	4.8	73.5	1.7	7.6	-----	7,228	13,010	------	------	----
			3	-----	36.1	63.9	-----	.7	5.5	83.4	1.9	8.5	-----	8,194	14,750	------	------	----
1¼ miles northeast of; Mount Carmel No. 2 mine, Mary Lee bed (top bench, face of main entry).	87115	A	1	3.6	30.7	54.6	11.1	.6	-----	-----	-----	-----	2.0	6,950	12,510	2,800	------	93
Same (face of 4 right entry)	87116	A	1	3.6	30.9	52.8	12.7	.6	-----	-----	-----	-----	2.0	6,856	12,340	2,280	------	----
Same (face of 5 left entry)	87117	A	1	3.8	30.4	51.3	14.5	.6	-----	-----	-----	-----	2.4	6,656	11,980	2,800	------	----
Same (composite of samples 87115 to 87117, inclusive).	87118	A	1	3.7	30.6	53.0	12.7	.6	5.0	69.3	1.6	10.8	2.1	6,806	12,250	------	------	----
			2	-----	31.8	55.0	13.2	.6	4.7	71.9	1.6	8.0	-----	7,067	12,720	------	------	----
			3	-----	36.6	63.4	-----	.7	5.4	82.8	1.9	9.2	-----	8,144	14,660	------	------	----
4 miles southeast of; Barney mine, Mary Lee bed (top bench, face of main slope, 8,500 feet from mine mouth).	86970	A	1	2.0	30.7	54.7	12.6	.8	-----	-----	-----	-----	.5	7,083	12,750	2,800	------	92
Same (face of 3 left entry, 1,000 feet from mine mouth).	87202	A	1	2.3	30.8	54.9	12.0	.6	-----	-----	-----	-----	1.3	7,044	12,680	2,800	------	----
Same (face of 5 left entry, 3 left entry, 500 feet from mine mouth).	87203	A	1	2.6	31.1	54.5	11.8	.8	-----	-----	-----	-----	1.5	7,017	12,630	2,730	------	----
Same (face of 8 right entry, 1,400 feet from mine mouth).	87204	A	1	3.1	29.7	55.5	11.7	.7	-----	-----	-----	-----	1.8	7,033	12,660	2,620	------	----

Same (composite of samples 86970, 87202 to 87204, inclusive).	87205	A	1	2.7	30.8	54.4	12.1	.7	4.9	71.3	1.6	9.4	1.3	7,028	12,650	------	------	----
			2	-----	31.7	55.9	12.4	.7	4.8	73.3	1.7	7.1	-----	7,222	13,000	------	------	----
			3	-----	36.1	63.9	-----	.8	5.4	83.7	1.9	8.2	-----	8,244	14,840	------	------	----
Dora, 1½ miles northwest of; Pratt Fuel mine, Mary Lee bed (upper bench, face of 2 left butt entry, No. 4 opening).	81939	A	1	2.8	29.4	54.3	13.5	.7	-----	-----	-----	-----	1.3	6,917	12,450	2,910	------	94
Same (face of 3 right entry, No. 5 opening)	81940	A	1	2.6	29.8	54.6	13.0	.6	-----	-----	-----	-----	1.2	6,961	12,530	2,910	------	----
Same (face of 5 left entry, No. 1 opening)	81941	A	1	2.8	30.6	52.6	14.0	.6	-----	-----	-----	-----	1.4	6,883	12,390	2,850	------	----
Same (face of 1 butt entry, No. 3 opening)	81942	A	1	2.8	29.5	52.8	14.9	.6	-----	-----	-----	-----	1.4	6,806	12,250	2,910	------	----
Same (face of 2 butt entry)	81943	A	1	2.7	29.5	52.2	15.6	.6	-----	-----	-----	-----	1.3	6,744	12,140	2,850	------	----
Same (composite of samples 81939 to 81943, inclusive).	81944	A	1	2.7	29.8	53.4	14.1	.6	4.8	70.0	1.6	8.9	1.3	6,878	12,380	------	------	----
			2	-----	30.6	54.9	14.5	.6	4.6	72.0	1.7	6.6	-----	7,072	12,730	------	------	----
			3	-----	35.8	64.2	-----	.8	5.4	84.0	2.0	7.6	-----	8,272	14,800	------	------	----
1¾ miles northwest of; Kershaw mine, Mary Lee bed (upper bench, face of 2 entry).	79673	A	1	3.1	31.5	53.8	11.6	.6	-----	-----	-----	-----	1.7	7,072	12,730	2,870	------	94
Same (face of 2 butt entry)	79674	A	1	3.2	31.1	51.4	14.3	.6	-----	-----	-----	-----	1.7	6,822	12,280	2,910	------	----
Same (face of 4 entry, 500 feet from mine mouth)	79675	A	1	3.6	30.7	52.5	13.2	.6	-----	-----	-----	-----	2.0	6,900	12,420	2,830	------	----
Same (face of 5 entry, 700 feet from mine mouth)	79676	A	1	3.1	31.5	54.5	10.9	.7	-----	-----	-----	-----	1.6	7,161	12,890	2,910	------	----
Same (1 butt, 5 face entry, 700 feet from mine mouth).	79677	A	1	3.4	31.9	54.0	10.7	.7	-----	-----	-----	-----	1.8	7,128	12,830	2,930	------	----
Same (composite of samples 79673 to 79677, inclusive).	79678	A	1	3.3	31.3	53.3	12.1	.6	5.0	71.0	1.7	9.6	1.8	7,017	12,630	------	------	----
			2	-----	32.3	55.1	12.6	.7	4.8	73.4	1.8	6.7	-----	7,256	13,060	------	------	----
			3	-----	37.0	63.0	-----	.8	5.5	84.0	2.0	7.7	-----	8,300	14,940	------	------	----
2 miles northwest of; Dora fuel mine, Mary Lee bed (upper bench, face of 8 right entry).	81945	A	1	3.1	29.9	53.7	13.3	.7	-----	-----	-----	-----	1.4	6,911	12,440	2,850	------	----
Same (face of 7 left entry)	81946	A	1	3.1	30.5	52.7	13.7	.7	-----	-----	-----	-----	1.4	6,856	12,340	2,850	------	----
Same (rib of 4 right entry, 250 feet from face)	81947	A	1	3.5	29.3	52.5	14.7	.6	-----	-----	-----	-----	1.9	6,722	12,100	2,910	------	----
Same (face of main entry, 1,800 feet from mine mouth).	81948	A	1	3.7	29.1	53.3	13.9	.6	-----	-----	-----	-----	2.3	6,772	12,190	2,910	------	----
Same (face of 8 left entry)	81949	A	1	3.7	29.5	52.3	14.5	.6	-----	-----	-----	-----	2.2	6,717	12,090	2,910	------	----
Same (composite of samples 81945 to 81949, inclusive).	81950	A	1	3.3	29.7	52.9	14.1	.7	4.9	68.9	1.7	9.7	1.8	6,783	12,210	------	------	----
			2	-----	30.7	54.7	14.6	.7	4.7	71.2	1.7	7.1	-----	7,011	12,620	------	------	----
			3	-----	35.9	64.1	-----	.8	5.5	83.4	2.0	8.3	-----	8,206	14,770	------	------	----
Summit No. 1 mine, Black Creek bed (face of 9 right entry).	83005	A	1	2.9	36.0	59.5	1.6	.7	-----	-----	-----	-----	2.1	8,100	14,580	2,450	------	95
Same (face of 3 room, 9 left entry)	83006	A	1	2.8	36.5	58.5	2.2	.8	-----	-----	-----	-----	1.7	8,044	14,480	2,510	------	----
Same (right rib of 3 room, 10 right entry)	83007	A	1	2.8	35.6	60.2	1.4	.6	-----	-----	-----	-----	1.8	8,083	14,550	2,510	------	----
Same (composite of samples 83005 to 83007, inclusive).	83008	A	1	2.8	35.7	59.6	1.9	.7	5.6	81.9	1.8	8.1	1.9	8,094	14,570	------	------	----
			2	-----	36.7	61.4	1.9	.7	5.5	84.3	1.8	5.8	-----	8,328	14,990	------	------	----
			3	-----	37.4	62.6	-----	.7	5.6	85.9	1.9	5.9	-----	8,494	15,290	------	------	----
Summit No. 2 mine, Black Creek bed (face of main entry).	83009	A	1	2.8	38.6	57.0	1.6	.8	-----	-----	-----	-----	1.7	8,122	14,620	2,450	------	95
Same (200 feet outby face of main entry)	83010	A	1	2.8	36.9	58.7	1.6	.6	-----	-----	-----	-----	1.6	8,089	14,560	2,740	------	----
Same (face of main entry)	83011	A	1	2.8	37.3	57.4	2.5	.7	-----	-----	-----	-----	1.5	8,017	14,430	2,470	------	----
Same (composite of samples 83009 to 83011, inclusive).	83012	A	1	2.6	37.4	58.1	1.9	.8	5.7	81.4	1.8	8.4	1.6	8,067	14,520	------	------	----
			2	-----	38.4	59.6	2.0	.8	5.5	83.6	1.9	6.2	-----	8,283	14,910	------	------	----
			3	-----	39.1	60.9	-----	.8	5.6	85.3	1.9	6.4	-----	8,450	15,210	------	------	----

TABLE 2.—*Chemical analyses of mine samples*—Continued

Locality, mine, etc.	Sample			Proximate				Ultimate						Calorific value			Reference	
	Laboratory No.	Kind	Condition	Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Air-drying loss	Calories	B. t. u.	Softening temperature (° F.)	Bulletin No.	Page
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
WALKER COUNTY—Continued																		
Dora, 9 miles northeast of; Sipsey mine, Black Creek bed (face of 6 west entry).	18404	A	1	3.8	34.6	57.7	3.9	1.2	-----	-----	-----	-----	2.0	------	-------	2,330	123	----
Same (face of 12 room, 10 west entry)	18405	A	1	3.4	35.5	58.6	2.5	.9	-----	-----	-----	-----	1.5	------	-------	2,580	123	----
Same (face of 13 room, 9 east entry)	18406	A	1	3.8	34.1	59.4	2.7	.8	-----	-----	-----	-----	1.8	------	-------	2,370	123	----
Same (face of 9 room, 5 east entry)	18407	A	1	3.6	33.9	59.0	3.5	1.1	-----	-----	-----	-----	1.8	------	-------	2,430	123	----
Same (composite of samples 18404 to 18407, inclusive).	18408	A	1	3.6	34.8	58.6	3.0	1.1	5.4	79.1	1.7	9.7	1.8	7,817	14,070	------	123	----
			2	-----	36.1	60.7	3.2	1.1	5.1	82.1	1.8	6.7	-----	8,111	14,600	------	------	----
			3	-----	37.2	62.8	-----	1.1	5.3	84.8	1.9	6.9	-----	8,378	15,080	------	------	----
Empire, ¾ mile southwest of; Empire No. 2 mine, Black Creek bed (face of 11 right entry, No. 3 opening).	79663	A	1	3.7	36.3	58.0	2.0	.7	-----	-----	-----	-----	2.3	7,972	14,350	2,340	------	95
Same (face of 10 left entry, No. 3 opening)	79664	A	1	3.4	35.2	57.6	3.8	.8	-----	-----	-----	-----	2.3	7,844	14,120	2,440	------	----
Same (north face, 4 right entry, No. 2 opening)	79665	A	1	3.2	35.7	58.4	2.7	1.4	----	-----	-----	-----	2.1	7,900	14,220	2,090	------	----
Same (face of 4 right entry, No. 2 opening)	79666	A	1	3.1	36.1	58.0	2.8	.9	----	-----	-----	-----	1.9	7,922	14,260	2,340	------	----
Same 200 feet outby face, 8 right entry, No. 2 opening).	79667	A	1	3.3	36.2	59.3	1.2	.5	-----	-----	-----	-----	1.6	8,072	14,530	2,670	------	----
Same (composite of samples 79663 to 79667, inclusive).	79668	A	1	3.6	36.0	57.8	2.6	.9	5.5	79.9	1.8	9.3	2.1	7,939	14,390	------	------	----
			2	-----	37.3	60.1	2.6	.9	5.3	82.8	1.9	6.5	-----	8,228	14,810	------	------	----
			3	-----	38.3	61.7	-----	1.0	5.5	85.1	1.9	6.5	-----	8,450	15,210	------	------	----
1¾ miles north of; Empire No. 1 mine, Black Creek bed (face entry, 7 right entry, No. 10 opening).	79657	A	1	2.8	36.1	57.6	3.5	1.4	-----	-----	-----	-----	1.3	7,878	14,180	2,300	------	96
Same (face of 11 heading, 11 opening)	79658	A	1	3.3	37.7	56.7	2.3	.8	-----	-----	-----	-----	1.9	7,983	14,370	2,510	------	----
Same (face of 3 opening)	79659	A	1	4.0	35.8	58.0	2.2	.8	-----	-----	-----	-----	2.7	7,889	14,200	2,460	------	----
Same (face of 6 opening, new No. 1)	79660	A	1	3.5	36.4	58.1	2.0	.7	-----	-----	-----	-----	2.0	7,928	14,270	2,440	------	----
Same (face of 31 left entry, old No. 1)	79661	A	1	3.2	37.1	56.7	3.0	1.4	-----	-----	-----	-----	1.8	7,889	14,200	2,260	------	----
Same (composite of samples 79657 to 79661, inclusive).	79662	A	1	3.2	36.9	57.1	2.8	1.1	5.6	79.7	1.8	9.0	1.9	7,922	14,260	------	------	----
			2	-----	38.1	59.1	2.8	1.1	5.4	82.3	1.9	6.5	-----	8,183	14,730	------	------	----
			3	-----	39.3	60.7	-----	1.1	5.6	84.7	1.9	6.7	-----	8,422	15,160	------	------	----
Gorgas; No. 12 mine, Pratt bed (face of 3 room, 12 cross entry; composite of 3 bench samples).	80451	A	1	1.4	35.2	56.3	7.1	1.3	5.1	76.3	1.8	8.4	.4	7,667	13,800	2,440	------	----
			2	-----	35.7	57.1	7.2	1.3	5.1	77.4	1.8	7.2	-----	7,778	14,000	------	------	----
			3	-----	38.4	61.6	-----	1.4	5.4	83.4	1.9	7.9	-----	8,378	15,080	------	------	----
Same (face of main entry, 1,600 feet from main mouth; composite of 3 bench samples).	80452	A	1	1.2	35.6	56.2	7.0	1.9	5.5	76.8	1.8	7.0	.4	7,700	13,860	2,240	------	----
			2	-----	36.1	56.8	7.1	1.9	5.4	77.7	1.8	6.1	-----	7,789	14,020	------	------	----
			3	-----	38.8	61.2	-----	2.0	5.8	83.6	1.9	6.7	-----	8,383	15,090	------	------	----

Winona mine, Nickel Plate bed (face of 4 right entry, No. 2 opening).	80349	A	1	4.2	29.6	55.6	10.6	2.3	-----	-----	-----	-----	2.3	7,028	12,650	2,440	------	96
Same (face of 2 left entry, No. 3 opening)	80350	A	1	2.0	32.0	53.6	12,4	2.2	-----	-----	-----	-----	1.1	7,100	12,780	2,680	------	----
Same (face of 4 opening)	80351	A	1	2.7	31.8	54.6	10.9	1.7	-----	-----	-----	-----	1.7	7,172	12,910	2,680	------	----
Same (composite of samples 80349 and 80351, inclusive).	80352	A	1	3.0	30.0	55.8	11.2	2.0	5.1	71.8	1.6	8.3	1.7	7,111	12,800	------	------	----
			2	-----	31.0	57.4	11.6	2.1	4.9	74.0	1.6	5.8	-----	7,328	13,190	------	------	----
			3	-----	35.0	65.0	-----	2.4	5.5	83.7	1.8	6.6	-----	8,289	14,920	------	------	----
Pratt bed (face of No. 12 opening)	80359	A	1	2.9	34.5	53.9	8.7	2.5	-----	-----	-----	-----	1.5	7,456	13,420	2,370	------	96
Same (face of No. 8 opening)	80360	A	1	3.7	33.3	56.3	6.7	1.3	-----	-----	-----	-----	2.3	7,561	13,610	2,440	------	----
Same (face of No. 13 opening)	80361	A	1	3.0	34.3	54.5	8.2	2.8	-----	-----	-----	-----	1.9	7,472	13,450	2,370	------	----
Same (composite of samples 80359 to 80361, inclusive).	80362	A	1	3.2	33.4	55.6	7.8	2.2	5.4	75.2	1.7	7.7	1.9	7,506	13,510	------	------	----
			2	-----	34.5	57.4	8.1	2.3	5.2	77.7	1.8	4.9	-----	7,750	13,950	------	------	----
			3	-----	37.5	62.5	-----	2.5	5.7	84.5	1.9	5.4	-----	8,433	15,180	------	------	----
Horse Creek, 1½ miles west of; No. 8 mine, Horse Creek bed (1 left entry, 3 right entry, 1,450 feet from mine mouth).	1077	A	1	1.2	31.5	54.5	12.8	.7	-----	-----	-----	-----	-----	------	-------	------	22	----
			2	-----	31.9	55.1	13.0	.7	-----	-----	-----	-----	-----	------	-------	------	------	----
Same (24 room, 2 left entry, 1,250 feet from mine mouth).	1078	A	1	1.4	31.7	53.3	13.6	.7	-----	-----	-----	-----	-----	7,217	12,990	------	22	----
			2	-----	32.1	54.1	13.8	.7	-----	-----	-----	-----	-----	7,317	13,170	------	------	----
Parrish; Parrish mine, Mary Lee bed (face of main north entry).	77605	A	1	3.2	31.3	50.1	15.4	.9	-----	-----	-----	-----	1.9	6,622	11,920	2,520	------	97
Same (face of A left entry)	77606	A	1	3.6	30.8	51.7	13.9	.9	-----	-----	-----	-----	1.9	6,683	12,030	2,740	------	----
Same (face of 3 right entry)	77607	A	1	2.7	31.4	54.0	11.9	.7	-----	-----	-----	-----	1.1	7,017	12,630	2,680	------	----
Same (face of main south entry)	77608	A	1	3.6	30.1	52.9	13.4	.7	-----	-----	-----	-----	2.0	6,767	12,180	2,730	------	----
Same (composite of samples 77605 to 77608, inclusive).	77609	A	1	3.2	30.4	52.7	13.7	.9	4.9	69.7	1.4	9.4	1.7	6,783	12,210	------	------	----
			2	-----	31.4	54.4	14.2	.9	4.7	72.0	1.5	6.7	-----	7,011	12,620	------	------	----
			1	-----	36.6	63.4	-----	.1	5.5	83.9	1.7	7.9	-----	8,167	14,700	------	------	----
Paynes Bend, 600 feet northeast of; Paynes Bend No. 1 mine, Pratt bed (face of main entry).	87206	A	1	2.8	35.2	56.4	5.6	1.1	-----	-----	-----	-----	2.0	7 761	13,970	2,620	------	98
Same	87207	A	1	2.7	34.0	56.3	7.0	1.4	-----	-----	-----	-----	1.9	7,639	13,750	2,570	------	----
Same (face of 2 right entry, new haulage, left rib, 15 feet from face).	87208	A	1	1.9	35.6	54.6	7.9	1.5	-----	-----	-----	-----	1.2	7,650	13,770	2,450	------	----
Same (face of 4 left entry)	87209	A	1	1.8	36.8	53.7	7.7	1.8	-----	-----	-----	-----	1.2	7,694	13,850	2,390	------	----
Same (face of 4 right entry, new haulage, 1 cross entry, 5 left entry).	87210	A	1	2.3	35.0	56.9	5.8	1.4	-----	-----	-----	-----	1.5	7,811	14,060	2,620	------	----
Same (composite of samples 87206 to 87210, inclusive).	87211	A	1	2.4	35.5	55.4	6.7	1.4	5.3	77.5	1.6	7.5	1.6	7,717	13,890	------	------	----
			2	-----	36.4	56.7	6.9	1.5	5.1	79.4	1.7	5.4	-----	7,906	14,230	------	------	----
			3	-----	39.0	61.0	-----	1.6	5.5	85.3	1.8	5.8	-----	8,489	15,280	------	------	----
Townley, 1 mile north of; Galloway No. 15 mine, Jagger bed (face of 4 left main entry).	80119	A	1	3.4	32.9	49.8	13.9	1.8	-----	-----	-----	-----	1.1	6,661	11,990	2,450	------	98
Same (face of 1 left heading)	80120	A	1	3.1	33.4	49.0	14.5	.9	-----	-----	-----	-----	1.0	6,684	12,030	2,550	------	----
Same (face of 5 right entry)	80121	A	1	3.3	33.1	47.0	16.6	1.6	-----	-----	-----	-----	1.2	6,428	11,570	2,850	------	----
Same (face of main entry)	80122	A	1	3.1	34.4	48.7	13.8	2.2	-----	-----	-----	-----	1.1	6,678	12,020	2,470	------	----
Same (composite of samples 80119 to 80122, inclusive).	80123	A	1	3.4	32.4	49.8	14.4	1.6	5.0	66.5	1.7	10.8	1.1	6,622	11,920	------	------	----
			2	-----	33.6	51.5	14.9	1.7	4.8	68.8	1.7	8.1	-----	6,856	12,340	------	------	----
			3	-----	39.5	60.5	-----	2.0	5.7	80.9	2.0	9.4	-----	8,061	14,510	------	------	----

DESCRIPTION OF SAMPLES

BIBB COUNTY

BLOCTON. KLONDYKE SHAFT MINE

Analyses 82716 to 82720 (p. 14). Bituminous coal, Cahaba field, Southern Appalachian region, from Klondyke mine, a shaft mine near Blocton on the Alabama Great Southern Railroad. Coal bed, Woodstock; dip, practically flat; thickness, 2 feet 9 inches to 3 feet 3 inches. Roof, hard shale; floor, shale. Cover at point of sampling, 300 feet. The bed was measured and sampled at four points by J. J. Forbes on November 3, 1921, as described below:

Sections of coal bed in Klondyke mine

Section	A		B		C		D	
Laboratory No.	82716		82717		82718		82719	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, hard shale.								
"Slate," bone, coal		*7		*3		*2½		*3
Coal	2	7	3		2	7	2	6
Floor, shale.								
Thickness of bed	3	2	3	3	2	9½	2	9
Thickness of sample	2	7	3	0	2	7	2	6

* Not included in sample.

Section A (sample 82716) was measured at face of 1 east entry; section B (sample 92717) was measured at face of 2 east heading; section C (sample 82718) was measured at face of 2 cross heading off 2 east heading; and section D (sample 82719) was measured at face of 2 north entry. The ultimate analysis of a composite sample made by combining face samples 82716 to 82719 is given under laboratory No. 82720.

System of mining, room and pillar. Coal was shot off the solid by FF black blasting powder. The output in 1920 was 33,138 tons. At time of sampling the daily output was 160 tons, of which 15 per cent came from advance workings. Coal was picked on cars. The life of the mine was estimated to be 5 years.

BLOCTON. NO. 4 SLOPE MINE

Analyses 82799 to 82803 (p. 14). Bituminous coal, Cahaba field, from No. 4 slope mine, a single entry slope, 1 mile northeast of Blocton on the Alabama Great Southern Railroad. Coal bed, Woodstock; dip 3°; thickness, 2 feet 5 inches to 3 feet 5 inches. Roof, hard slate; floor, soft shale; 3 to 6 inches of rock and bone between coal and roof. The bed was measured and sampled at four points on November 3, 1921, as described below.

Section A (sample 82799), representing 2 feet 11 inches of coal, was measured at face of 3 cross heading, off 1 east entry; section B (sample 82800), representing 2 feet 11 inches of coal, was measured at face of 2 cross heading off 1 east entry; section C (sample 82801), representing 2 feet 10 inches of coal, was measured at face of 4 east entry; and section D (sample 82802), representing 2 feet 2 inches of coal, was measured at face of 4 west entry. The ultimate analysis of a composite sample made by combining face samples 82799 to 82802 is given under laboratory No. 82803.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder. At the time of sampling the daily output was 80 tons, of which 30 per cent came from advanced workings. Coal was picked on cars. The life of mine was estimated at 5 years.

Blocton. No. 10 Blocton Mine

Analyses 83898 to 83904 (p. 14). Bituminous coal, Cahaba field, from No. 10 Blocton mine, a slope mine 450 feet above sea level, 1 mile south of Blocton on the Mobile & Ohio Railroad. Coal bed, Woodstock; dip 10°; thickness, 2 feet 7 inches to 4 feet 1 inch. Roof, sandy shale; floor, shale. Cover at points of sampling, 750 to 850 feet. The bed was measured and sampled at six points on January 1, 1922, as described below:

Sections of coal bed in No. 10 Blocton mine

Section	A		B		C		D		E		F	
Laboratory No.	83898		83899		83900		83901		83902		83903	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandy shale.												
Coal		1½				1		1				
Rash		*2½		*3		*1		*1		*1½		* ¾
Coal		5¼	3	10	2	7½	2	5	2	11	3	5
Shale		* ⅛										
Coal		1										
Shale		* ⅛										
Coal		4¼										
Shale		* ¼										
Coal	2	3										
Floor, shale.												
Thickness of bed	3	6	4	1	2	9½	2	7	3	½	3	5¾
Thickness of sample	3	3	3	10	2	8½	2	6	2	11	3	5

* Not included in sample.

Section A (sample 83898) was measured 300 feet back from face of 4 right entry, sec. 16, T. 22 S., R. 10 E.; section B (sample 83899) was measured at 5 right entry 75 feet back from face, sec. 30, T. 22 S., R. 5 W.; section C (sample 83900) was measured at face of 6 right entry, sec. 30, T. 22 S., R. 5 W.; section D (sample 83901) was measured at face of main slope, 50 feet back from face, sec. 30, T. 22 S., R. 5 W.; section E (sample 83902) was measured 100 feet from face to 6 left entry; and section F (sample 83903) was measured at face of 5 left entry, sec. 19, T. 22 S., R. 5 W. The ultimate analysis of a composite sample made by combining face samples 83898 to 83903 is given under laboratory No. 83904.

System of mining, room and pillar. Coal was shot off the solid with permissible explosive. At the time of sampling the daily output was 500 tons, of which 40 per cent came from advance workings.

Blocton. Tico Mine

Analyses 83044 to 83049 (p. 15). Bituminous coal, Cahaba field, from Tico mine, a slope mine 500 feet above sea level, 3½ miles east of Blocton, in sec. 21, T. 22 S., R. 5. W., on the Louisville & Nashville Railroad and the Alabama Great Southern Railroad. Coal bed, Thompson; dip, 7 per cent north and south; 7 per cent average dip; thickness, 5 feet 5 inches to 7 feet. Roof and floor, soft shale; 3 to 12 inches of "rash" between coal and roof. Cover at point of sampling, 35 to 75 feet. The bed was measured and sampled at five points by J. J. Forbes on November 18, 1921, as described below:

Section A (sample 83044), representing 5 feet 2½ inches of coal, was measured at face of 1 right heading; section B (sample 83045), representing 5 feet 10 inches of coal, was measured at face of room 38 off 1 right heading; section C (sample 83046), representing 5 feet 2 inches of coal, was measured at face of room 32 off 1 right heading; section D (sample 83047), representing 6 feet of coal, was measured at rib of room 17 off 1 right heading; and section E (sample 83048), representing 5 feet 2 inches of coal, was measured at face of room 5 off 1 right heading. The ultimate analysis of a composite sample made by combining face samples 83044 to 83048 is given under laboratory No. 83049.

System of mining, room and pillar. Coal was shot off the solid with black blasting powder. At time of sampling the daily output was 200 tons, 10 per cent of which was from advance workings. Stationary bar screens are used. Life of mine was estimated at 3 years.

BLOCTON. RED FEATHER MINE

Analyses 83013 to 83018 (p. 15). Bituminous coal, Cahaba field, from Red Feather mine, a slope mine about 500 feet above sea level, 4 miles south of Blocton, in sec. 11, T. 24 N., R. 9 E., on the Mobile & Ohio Railroad. Coal bed, Thompson; dip, 6 per cent average; thickness, 3 feet 10 inches to 5 feet 2¾ inches. Roof, fairly hard "slate"; floor, fairy shoft shale. Cover at point of sampling, 50 to 200 feet. The bed was measured and sampled at five points by J. J. Forbes, November 16, 1921, as described below:

Sections of coal bed in Red Feather mine

Section	A		B		C		D		E	
Laboratory No.	83013		83014		83015		83016		83017	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, fairly hard "slate."										
Coal		1½		2		1½	4	6		1½
"Rash"	———		———		———		———		———	
Slate and coal		*3½	———			*1½	———		———	
Bone and "slate"	———			*1½	———		———		———	
Shale	———		———		———			⅜		⅜
Coal	3	2½	3	6	2	10½		6	4	4
Shale (soft)		*2		*1½		*1½		⅜		*2
Coal		5		3		7		2		1
Floor, fairly soft shale.										
Thickness of bed	4	2½	4	2	3	10	5	2¾	4	8⅞
Thickness of sample	3	9	3	11	3	7	5	2¾	4	6⅞

* Not included in sample.

Section A (sample 83013) was measured at face of 1 left heading off 1 east entry; section B (sample 83014) was measured at face of room 20 off 1 east entry; section C (sample 83015) was measured at face of 2 cross heading off 1 east entry; section D (sample 83016) was measured at face of 2 dip heading off 2 cross heading 1 east entry; and section E (sample 83017) was measured at face of "A" entry. The ultimate analysis of a composite sample made by combining face samples 83013 to 83017 is given under laboratory No. 83018.

System of mining, room and pillar, single entry. Coal was shot off the solid with F black blasting powder. At the time of sampling the daily output was 150 tons, of which 20 per cent came from advance workings. Shaker screens were used; size of coal was lump over 1½ inches and steam under 1½ inches. Coal was picked on car. Life of mine was estimated at 5 years.

BLOCTON. NORRIS MINE

Analyses 83060 to 83066 (p. 15). Bituminous coal, Cahaba field, from Norris mine, a slope mine 460 feet above sea level, 7 miles from Blocton, in sec. 22, T. 24 N., R. 9 E., on the Mobile & Ohio Railroad. Coal bed, Yessick, dip 8°; thickness, 2 feet 9¾ inches to 3 feet 7½ inches. Roof, fairly hard slate; floor, fairly hard shale. Cover at point of sampling, 100 to 200 feet. The bed was measured and sampled at five points by J. J. Forbes, November 17, 1921, as described below:

Sections of coal bed in Norris mine

Section Laboratory No.	A 83060		B 83061		C 83062		D 83064		E 83065	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, fairly hard "slate."										
Coal	1	7	1	9	1	2		9		11
Shale and fine coal layers		*3½		*3½	-------		-------		-------	
Shale band	-------		-------			* ¾	-------		-------	
Rock	-------		-------		-------			¾	-------	
Dirt band	-------		-------		-------		-------			¾
Coal	1	5	1	7		6		9		9
Shale band	-------		-------			*1	-------		-------	
Rock	-------		-------		-------			1	-------	
Shale	-------		-------		-------		-------			1
Coal	-------		-------			9	1	2		8½
"Rash" ("slate" and coal)	-------		-------			*2	-------			1½
Coal	-------		-------			7	-------			6
Floor, fairly hard shale.										
Thickness of bed	3	3½	3	7½	3	3¾	2	9¾	3	1¾
Thickness of sample	3		3	4	3		2	9¾	3	1¾

* Not included in sample. Number of shale bands too small to measure throughout bed.

Section A (sample 83060) was measured at face of 4 east heading; section B (sample 83061) was measured at rib of 3 west heading; section C (sample 83062) was measured at face of 11 room off 4 west heading; section D (sample 83064) was measured at rib of 5 east heading off slope; and section E (sample 83065) was measured at 1 room off 1 west heading. The ultimate analysis of a composite sample made by combining face samples 83060 to 83062 is given under laboratory No. 83063, and the ultimate analysis of a composite sample made by combining face samples 83064 and 83065 is given under laboratory No. 83066.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. Coal was picked on car. Output in 1920 was 35,000 tons. At the time of sampling the daily output was 200 tons. Life of mine was estimated at 25 years.

MARVEL. MARVEL NO. 3 MINE

Analyses 78859 to 78863 (p. 17). Bituminous coal, Cahaba field, from Marvel No. 3 mine, a slope mine 550 feet above sea level, one-half mile northeast of Marvel. Coal bed, Clark; dip, 15 per cent south, 60° east; cleat not defined; thickness, 3 feet 3 inches to 3 feet 6¼ inches. A few rolls are encountered. Gholson seam 50 feet above. Roof, mostly sandstone; floor, hard, smooth sandstone. Cover at point of sampling, 600 to 800 feet. The bed was measured and sampled at four points by J. J. Forbes, February 25, 1921, as follows:

Sections of coal bed in Marvel No. 3 mine

Section	A		B		C		D	
Laboratory No.	78859		78860		78861		78862	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, principally sandstone.								
Coal		7		7¼		8		7¼
"Slate" parting		*1½		*2⅛		*2	--------	
Parting ("slate" middleman)	--------		--------		--------			*2
Coal	2	2	2	9½	2	7	2	3
"Sulphur"		* ½	--------		--------			* ⅛
Shale and clay	--------			*7½		*5½	--------	
Coal		9¼	--------		--------			5
"Rash" (shale and clay)		*7	--------		--------			*5
Floor, sandstone.								
Thickness of bed	4	3¼	4	2⅜	3	10½	3	10⅜
Thickness of sample	3	6¼	3	4¾	3	3	3	3¼

* Not included in sample.

Section A (sample 78859) was measured at face of 6 room, 6 left entry off slope entry; section B (sample 78860) was measured 100 feet from face of 8 right entry off slope entry; section C (sample 78861) was measured at face of 1 room, 7 right entry off slope entry; and section D (sample 78862) was measured at face of main hoisting shaft. The ultimate analysis of a composite sample made by combining face samples 78859 to 78862 is given under laboratory No. 78863.

System of mining, room and pillar. Coal was blasted by solid shooting and screened through 5 by 36 foot shaking screens with 3 and 6 inch holes. Sizes of coal, 65 per cent of 3 and 6 inch screenings. Haulage was done by rope (gravity plane) and mules. Men picked coal on belt. There were three loading tracks with capacity for 50 empty and 50 loaded railroad cars. Lumps on cars were large and bright; 60 per cent of coal was taken out in advance work, and a recovery of 75 per cent, including roof coal, was claimed. The unmined area was approximately 2,000 acres, and the probable life of the mine was 25 years. The daily capacity of the mine at time of sampling was 600 tons, the actual daily average being 400 tons, and the maximum day's run 675 tons.

West Blocton. Hills Creek Mine

Analyses 83050 to 83055 (p. 17). Bituminous coal, Cahaba field, from Hills Creek mine, a slope mine 510 feet above sea level, three-fourths mile northwest of West Blocton, in secs. 13, 14, 24, T. 22 S., R. 62, on the Louisville & Nashville Railroad. Coal bed, Woodstock; dip, 6 to 2°; strike, northeast and southwest; thickness, 3 feet 4 inches to 4 feet 3 inches. Roof, sandstone; floor, fairy hard slate. Cover at point of sampling, 250 to 300 feet. The bed was measured and sampled at five points by J. J. Forbes, November 17, 1921, as described below:

Sections of coal bed in Hills Creek mine

Section	A		B		C		D		E	
Laboratory No.	83050		83051		83052		83053		83054	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.										
Bone		*2		*4		*6	--------		--------	
Shale	--------		--------		--------			*4		*3
Coal (rashy)		4	--------		--------		--------		--------	
Coal	2	10	3	2	3		3	7	4	
Floor, fairly hard slate.										
Thickness of bed	3	4	3	6	3	6	3	11	4	3
Thickness of sample	3	2	3	2	3	0	3	7	4	

* Not included in sample.

Section A (sample 83050) was measured at face of 22 west entry; section B (sample 83051) was measured at face of 4 room off 15 east entry; section C (sample 83052) was measured at face of 13 east entry; section D (sample 83053) was measured at face of 17 heading; and section E (sample 83054) was measured at face of 14 room off 17 west entry. The ultimate analysis of a composite sample made by combining face samples 83050 to 83054 is given under laboratory No. 83055.

System of mining, room and pillar. Coal was shot off the solid with black blasting powder. Output in 1920 was 95,374 tons, and at the time of sampling the daily output was 500 tons, of which 20 per cent came from advance workings. Life of mine was estimated at 10 years. If the company can obtain additional leases, life of mine will be increased.

BLOUNT COUNTY

Lehigh. Lehigh Mine

Analyses 80132 to 80138 (p. 18). Bituminous coal, Warrior field, from Lehigh mine, a drift mine northwest of Lehigh in T. 13 S., R. Rs. 1 and 2 W., on the Louisville & Nashville Railroad. Coal bed, Black Creek; level; strike, N. 60° E.; thickness, 2 feet 6 inches to 4 feet 2 inches. Roof, "slate"; floor, soft fire clay. Cover at point of sampling, 60 to 70 feet. The bed was measured and sampled at six points, as described below, by J. J. Forbes, June 3, 1921.

Sections of coal bed in Lehigh mine

Section Laboratory No.	A 80132		B 80133		C 80134		D 80135		E 80136		F 80137	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."												
Coal		6		----		----		2		----		3¼
Dirt band		*2		----		----		----		----		----
Coal		----		2		2		----		3		----
Clay (soft)		----		----		----		*2½		----		----
"Rash"		----		----		----		----		----		*5
Coal		1½		----		----		1½		----		----
"Rash"		----		*5		----		----		*4		----
Clay (soft)		*2½		*4		*7		*4		*7		*5
Coal		2½	1	11	2		2		1	2		1¾
Shale		----		----		----		----		----		*1½
Clay		*1½		----		----		----		----		----
"Mother coal"		----		----		----		----		2½		----
Coal	1	3¾		----		----		----	1	3	1	10
"Mother coal"		½		----		----		----		----		----
Coal		9½		----		----		----		----		----
Floor, fire clay.												
Thickness of bed	3	5¾	2	10	2	9	2	10½	3	9½	3	2½
Thickness of sample	2	11¾	2	1	2	2	2	3½	2	10½	2	3

* Not included in sample.

Section A (sample 80132) was measured at face of 1 right entry, new side (No. 4 opening); section B (sample 80133) was measured at 2 room off 1 butt entry, new side (No. 4 opening); section C (sample 80134) was measured at 1 room off 5 left entry (No. 1 opening); section D (sample 80135) was measured at face of 8 right entry (No. 1 opening); section E (sample 80136) was measured at 8 room off 2 right heading (No. 5 opening); and section F (sample 80137) was measured at face of 2 right heading (No. 5 opening). The ultimate analysis of a composite sample made by combining face samples 80132 to 80137, inclusive, is given under laboratory No. 80138.

System of mining, room and pillar. Coal was side cut by hand; 40 per cent dynamite was used. Output in 1920 was 44,186 tons. At the time of sampling the daily output was 300 tons, run of mine, all from advance workings. Life of mine was estimated at 10 years.

NYOTA. CARBON GROUP MINE

Analyses 83293 to 83298 (p. 18). Bituminous coal, Warrior field, from Carbon Group mine, a drift mine 1 mile south of Nyota, in section 10, T. 13 S., R. 2 W., on the Louisville & Nashville Railroad. Coal bed, Black Creek; thickness 2 feet 6 inches to 3 feet 2 inches. Floor, fairy soft fire clay. Cover at point of sampling, 50 to 150 feet. The bed was measured and sampled at five points by J. J. Forbes, December 1, 1921, as described below:

Sections of coal bed in Carbon Group mine

Section	A		B		C		D		E	
Laboratory No.	83293		83294		83295		83296		83297	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	2	6	†3	2	----		----		----	
"Rash"	----		----			*7½		*6		*5
Coal	----		----		2	2½	2	2½	2	4
Floor, fairly soft fire clay.										
Thickness of bed	2	6	3	2	2	10	2	8½	2	9
Thickness of sample	2	6	3	2	2	2½	2	2½	2	4

* Not included in sample.
† Dirt and "slate" bands mixed with small bands of coal.

Section A (sample 83293) was measured at face of main north entry; section B (sample 83294) was measured at face of 1 right heading; section C (sample 83295) was measured at face of 6 left heading; section D (sample 83296) was measured at face of 2 right heading; and section E (sample 83297) was measured at face of 2 left heading. The ultimate analysis of a composite sample made by combining face samples 83293 to 83297 is given under laboratory No. 83298.

System of mining, room and pillar. Coal was shot with black blasting powder. Output in 1920 was 94,662 tons. At the time of sampling the daily output was 800 tons, 15 per cent of which was from advance workings. Coal was screened, and 85 per cent washed. Size produced, 3½ inch. Life of mine was estimated at 15 years.

NYOTA GROUP MINE

Analyses 83426 to 83431 (p. 18). Bituminous coal, Warrior field, from Nyota Group mine, a drift mine one-half mile north of Nyota, in sec. 34, T. 13, R. 2 W., on the Louisville & Nashville Railroad. Coal bed, Black Creek; flat; strike, east and west; thickness, 1 foot 7½ inches to 2 feet 6 inches. Roof, fairly hard shale; floor fairly soft fire clay. Cover at point of sampling, 60 to 80 feet. The bed was measured and sampled at five points by J. J. Forbes, November 30, 1921, as described below:

Sections of coal bed in Nyota Group mine

Section	A		B		C		D		E	
Laboratory No.	83426		83427		83428		83429		83430	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, fairly hard shale.										
"Rash" (coal, "slate," bone)		*6	---			*6	---		---	
Coal	---			6½	---		---		---	
"Rash"	---		---		---			4		4
Coal	2		---		2		1	3½	2	2
"Slate"	---			¼	---		---		---	
Coal	---		1	10½	---		---		---	
Floor, fairly soft fire clay.										
Thickness of bed	2	6	2	5¼	2	6	1	7½	2	6
Thickness of sample	2		2	5¼	2		1	7½	2	6

* Not included in sample.

Section A (sample 83426) was measured at face of main north heading; section B (sample 83427) was measured at face of main south heading; section C (sample 83428) was measured at face of 3 left heading; section D (sample 83429) was measured at face of 3 right heading; and section E (sample 83430) was measured at face of 11 right heading. Section D (sample 83429), "rash," is composed principally of soft friable coal mixed with very small bands of "slate"; and section E (sample 83430), "rash," is composed principally of dirt "slate" and fine coal bands. The ultimate analysis of a composite sample made by combining face samples 83426 to 83430 is given under laboratory No. 83431.

System of mining, room and pillar. Coal was shot with black blasting powder. Output in 1920 was 94,662 tons. At the time of sampling the daily output was 800 tons, of which 15 per cent was from advance workings. Size produced, about 3½ inch. Coal was screened with stationary bar screen; 85 per cent of coal was washed with Montgomery washer. Life of mine was estimated at 15 years.

JEFFERSON COUNTY

BESSEMER. VIRGINIA MINE

Analyses 33913 to 33918 (p. 19). Bituminous coal, Warrior field, from Virginia mine, opened by slopes about 5,500 feet long, 7 miles west of Bessemer and about 17 miles southeast of Birmingham, on a branch of the Louisville & Nashville Railroad. Coal bed, Nickel Plate; Pratt group; thickness, 4 feet 5½ inches to 5 feet ¾ inch. Roof, sandy shale; floor, fire clay. Cover at point of sampling, 570 feet. The bed was measured and sampled at five points by W. B. Plank, January 28, 1920, as described below:

Sections of coal bed in Virginia mine

Section	A		B		C		D		E	
Laboratory No.	33913		33914		33915		33916		33917	
Roof, sandy shale.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	2	3		5½		4½		5½		5½
"Rash"		*1½		*1½		*2½	—	—		*2½
"Mother coal"	—	—	—	—	—	—		¼	—	—
Middleman, fire clay		*5½	—	—	—	—	—	—	—	—
Coal	—	—	1	11	1	10	—	—	1	11½
Coal, with "mother coal" streaks	—	—	—	—	—	—	2	½	—	—
Coal	1	8½	—	—	—	—	—	—	—	—
Middleman, fire clay	—	—		*2	—	—	—	—	—	—
"Rash"	—	—	—	—		*2½		*1½		*4
Bony coal	—	—		1	—	—	—	—	—	—
Middleman, fire clay	—	—	—	—		*8		*6½		*6½
Coal	—	—	1	8½	1	8	1	10½	1	9
Floor, fire clay.										
Thickness of bed	4	6½	4	5½	4	11½	5	¾	5	3
Thickness of sample	3	11½	4	2	3	10½	4	4¾	4	2

* Not included in sample.

Section A (sample 33913) was measured at face of 16 right entry; section B (sample 33914) was measured at face of 3 main right entry; section C (sample 33915) was measured at face of 24 right entry; section D (sample 33916) was measured at face of 1 room off 19 right entry; and section E (sample 33917) was measured at face of 25 right entry. The ultimate analysis of a composite sample, made by combining face samples 33913 to 33917, inclusive, is given under laboratory No. 33918.

System of mining, room and pillar; permissible explosives were used. The daily output of the mine at the time of sampling was 450 tons. In 1920 life of mine was estimated at 10 years.

BESSEMER. PARKWOOD MINE

Analyses 83443 to 83446 (p. 20). Bituminous coal, Cahaba field, from Parkwood mine, a wagon slope mine, 8 miles east of Bessemer, in sec. 28, T. 19, R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Gould; dip, 17°; strike, northeast and southwest; thickness, 3 feet to 5 feet 3 inches. Roof, sandy shale; floor, shale. Cover at point of sampling, 75 to 100 feet. The bed was measured and sampled at three points by J. J. Forbes, December 12, 1921.

Section A (sample 83443), representing 3 feet 4 inches of coal, was measured at right rib of main slope 25 feet out by face; section B (sample 83444), representing 3 feet of coal, was measured at face of 4 room off slope entry; and section C (sample 83445), representing 5 feet of coal, was measured at face of 1 left entry. The ultimate analysis of a composite sample, made by combining face samples 83443 to 83445, is given under laboratory No. 83446.

System of mining, room and pillar; explosive used, black blasting powder. Coal was not screened. At the time of sampling the daily output was 60 tons, all from advance workings.

BIRMINGHAM. CAHABA MINE

Analyses 80390 to 80396 (p. 20). Bituminous coal, Cahaba field, from Cahaba mine, a slope mine 8 miles southeast of Birmingham, in secs. 24 and 25, T. 18 S., R. 2 W.

Coal bed, Harkness; dip, 11°; thickness, 2 feet 11 inches to 3 feet 8½ inches. Roof and floor, sandstone. Cover at point of sampling, 325 to 335 feet. The bed was measured and sampled at five points by J. J. Forbes, June 24, 1921, as described below:

Sections of coal bed in Cahaba mine

Section	A		B		C		D		E	
Laboratory No.	80390		80391		80392		80394		80395	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, standstone.										
Coal	2			10	2	2	2	2	2	2
Fire clay		*2		*1¾		*2½		*2½		*2½
Coal		9	2	2	1	4	1	4	1	4
Dirt band	------	------		*1¼	------	------	------	------	------	------
Coal	------	------		11	------	------	------	------	------	------
Floor, sandstone.										
Thickness of bed	2	11	4	2	3	8½	3	8½	3	8½
Thickness of sample	2	9	3	11	3	6	3	6	3	6

* Not included in sample.

Section A (sample 80390) was measured at face of slope; section B (sample 80391) was measured at right rib of 7 left entry, 1,000 feet from face; section C (sample 80392) was measured at face of 7 right heading; section D (sample 80394) was measured 150 feet from face of 7 right heading; and section E (sample 80395) was measured at face of 7 right heading. The ultimate analysis of a composite sample made by combining face samples 80390 to 80392 is given under laboratory No. 80393; and the analysis of 80394 and 80395 is given under laboratory No. 80396.

System of mining, room and pillar. Coal was shot off the solid by FF black blasting powder. Output in 1920 was 26,000 tons. At the time of sampling the daily output was 100 tons, 90 per cent from advance workings. Coal was not screened; all was run of mine; coal was picked in mine. In 1921 life of mine was estimate at 20 years.

BIRMINGHAM. OVERTON SLOPE NO. 1 MINE

Analyses 84900 to 84903 (p. 20). Bituminous coal, Cahaba field, from Overton slope No. 1 mine, a slope mine 600 feet above sea level, 10 miles east of Birmingham in sec. 6, T. 18 S., R. 2 W., on the Central of Georgia Railroad. Coal bed, Lower Nunnally or Bray; dip, 17 per cent northeast; thickness, 3 feet 6¾ inches to 4 feet 6 inches. Roof and floor, shale; cover at point of sampling, 60 to 110 feet. The bed was measured and sampled at three points by J. J. Forbes, March 22, 1922, as described below:

Sections of coal bed in Overton slope No. 1 mine

Section	A		B		C	
Laboratory No.	84900		84901		84902	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, shale.						
Coal	1	3	2		1	9½
Shale		*7¾		*7½		*3½
Coal		9		11		9
Fire clay		*5½		*3		*4
Coal		6½		8½		7¾
Floor, shale.						
Thickness of bed	3	7¾	4	6	3	9¾
Thickness of sample	2	6½	3	7½	3	2¼

* Not included in sample.

Section A (sample 84900) was measured at face of room 1 off 2 left heading; section B (sample 84901) was measures at 2 right air course 350 feet inby slope;

and section C (sample 84902) was measured at face of 4 right entry, 50 feet inby slope rib. The ultimate analysis of a composite sample made by combining face samples 84900 to 84902 is given under laboratory No. 84903.

System of mining, room and pillar. Coal was shot off the solid, explosives used being FFF black blasting powder and permissible explosives. At the time of sampling the daily output was 60 tons, all from advance workings and all run of mine. Coal was to be screened and washed as soon as washery and tipple were completed.

Birmingham. Overton No. 2 Mine

Analyses 84896 to 84890 (p. 21). Bituminous coal, Cahaba field, from Overton slope No. 2 mine, a slope mine 385 feet above sea level, in sec. 6, T. 18 S., R. 2 W., on the Central of Georgia Railroad. Coal bed, Upper Nunnally or Glass; dip, 18 per cent; strike, northeast; thickness, 4 feet ¾ inch to 5 feet 10¾ inches. Roof and floor, sandstone. Cover at point of sampling, 100 to 135 feet. The bed was measured and sampled at three points by J. J. Forbes, March 22, 1922, as described below:

Sections of coal bed in Overton slope No. 2 mine

Section	A		B		C	
Laboratory No.	84896		84897		84898	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.						
Coal	2	5	3	3	3	
Shale		*6		*4¼		*4¾
Coal	1	3	1	6	1	9
"Rash" (carbonaceous shale)		*7		*9½		*9
Floor, sandstone.						
Thickness of bed	4	9	5	10¾	5	10¾
Thickness of sample	3	8	4	9	4	9

* Not included in sample.

Section A (sample 84896) was measured at rib of 3 left entry, 50 feet inby slope; section B (sample 84897) was measured at 4 right entry, 75 feet from slope; and section C (sample 84898) was measured at face of slope, 100 feet below 4 right entry. The ultimate analysis of a composite sample made by combining face samples 84896 to 84898 is given under laboratory No. 84899.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives and FFF black blasting powder. At the time of sampling the daily output was 100 tons, all from advance workings and all run of mine. Coal is picked in mine, and was to be screened and washed as soon as new washery and tipple were completed. In 1922 life of mine was estimated at 23 years.

Blossburg. Pinkney No. 1 Mine

Analyses 83438 to 83442 (p. 21). Bituminous coal, Cahaba field, from Pinkney No. 1 mine, a drift mine one-half mile east of Blossburg in sec. 22, T. 16, R. 4 W., on the Southern Railway. Coal bed, Nickel Plate; flat; butt course about 50° E.; thickness, 2 feet 5⅜ inches to 2 feet 7 inches. Roof, sandstone; floor, soft shale. Cover at point of sampling, 40 to 60 feet. The bed was measured and sampled at four points by J. J. Forbes, December 6, 1921, as described below:

Sections of coal bed in Pinkney No. 1 mine

Section	A		B		C		D	
Laboratory No.	83438		83439		83440		83441	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
Coal	1	5	1	5	1	5	1	5
Shale		*1⅜		*1		*1		*1
Coal		11	1	1½	1	1½	1	
Floor, soft shale.								
Thickness of bed	2	5⅜	2	7½	2	7½	2	6
Thickness of sample	2	4	2	6½	2	6½	2	5

* Not included in sample.
NOTE.—Few "sulphur" bands in bottom bench.

Section A (sample 83438) was measured at face of 12 room off 1 left (No. 4 opening); section B (sample 83439) was measured at face of 30 room (No. 4 opening); section C (sample 83440) was measured at face of 3 right entry (No. 1 opening); and section D (sample 83441) was measured at face of 2 right entry (No. 1 opening). The ultimate analysis of a composite sample made by combining face samples 83438 to 83441 is given under laboratory No. 83442.

System of mining, room and pillar. Coal was shot off the solid with permissible explosive. Coal was not screened, and was picked in mine. At the time of sampling the daily output of the mine was 200 tons, 20 per cent of which was from advance workings; all was run of mine. In 1921 life of mine was estimated at 4 years.

BLOSSBURG. PINKNEY No. 2 MINE

Analyses 83432 to 83437 (p. 21). Bituminous coal, Warrior field, from Pinkney No. 2 mine, a drift mine 1 mile south of Blossburg, in sec. 23, T. 16 S., R. 4 W., on the Southern Railway. Coal bed, Nickel Plate; flat; butt course about N. 53° E.; thickness, 2 feet 6 inches to 2 feet 6⅜ inches. Roof, sandy shale; floor, medium shale. Cover at point of sampling, 25 to 75 feet. Bed was measured and sampled at five points by J. J. Forbes, December 5, 1921, as follows:

Sections of coal bed in Pinkney No. 2 mine

Section	A		B		C		D		E	
Laboratory No.	83432		83433		83434		83435		83436	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandy shale.										
Coal	1	6	1	6	1	6	1	4½	1	6
"Rash" ("slate" and bone)		⅜		⅜		*2½		*1½		*1¼
Coal	1		1		1		1		1	
Floor, medium shale.										
Thickness of bed	2	6⅜	2	6⅜	2	8½	2	6	2	7¼
Thickness of sample	2	6⅜	2	6⅜	2	6	2	4½	2	6

* Not included in sample.
NOTE.—A, C, D, E: Few "sulphur" bands. B: Three strips of "sulphur" in bottom bench.

Section A (sample 83432) was measured at face of 1 left entry; section B (sample 83433) was measured at face of 1 room off 1 left entry; section C (sample 83434) was measured at left rib of 8 right entry, 200 feet outby face; section D (sample 83435) was measured at face of 7 right entry; and section E (sample 83436) was measured at face of 14 room off 6 right. The ultimate analysis of a composite sample, made by combining face samples 83432 to 83436 is given under laboratory No. 83437.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive. Screens were not used; coal was picked in mine. At the time of sampling the daily output of the mine was 250 tons per day, 20 per cent of which was from advance workings; all was run of mine. In 1921 life of mine was estimated at 4 years.

Bradford. Bradford Mine

Analyses 82091 to 82096 (p. 21). Bituminous coal, Warrior field, from Bradford mine, a slope mine 425 feet above sea level, at Bradford, 1 mile north of Dixiana, on the Louisville & Nashville Railroad. Coal bed, Black Creek; dips, 2½ per cent west; strike, due north and south; thickness, 1 foot to 2 feet 7 inches. Roof, "slate"; floor, soft fire clay. Cover at point of sampling, 40 to 150 feet. The bed was measured and sampled at five points by J. J. Forbes, October 7, 1921, as described below:

Section A (sample 82091), representing 2 feet 1 inch of coal, was measured at face of 3 right entry; section B (sample 82092), representing 1 foot of coal, was measured at face of 11 right entry; section C (sample 82093), representing 2 feet 2 inches of coal, was measured at face of slope; section D (sample 82094), representing 2 feet 7 inches of coal, was measured at face of 7 left entry; and section E (sample 82095), representing 1 foot 9 inches of coal, was measured at face of 4 left entry. The ultimate analysis of a composite sample, made by combining face samples 82091 to 82095, is given under laboratory No. 82096.

System of mining, room and pillar. Coal was shot off the solid. Coal was screened with stationary screens; 1¼-inch coal was washed, and all of it was coked. At the time of sampling the daily output was 650 tons, 12 per cent of which came from advance workings. In 1921 life of mine was estimated to be 15 years.

Docena. Docena Mine

Analyses 83795 to 83801 (p. 22) and 84066 to 84070 (p. 22). Bituminous coal, Warrior field, from Docena mine, a slope mine at Docena. Coal bed, Pratt; thickness, 11½ inches to 5 feet 4½ inches. Roof, sandy shale; floor, shale. Cover at point of sampling, about 300 feet. The bed was measured and sampled at 10 points by J. J. Forbes, December 30, 1921, as follows:

Sections of coal bed in Docena mine

Section	A		B		C		D		E		F	
Laboratory No.	83795		83796		83797		83798		83799		83800	
Roof, sandy shale.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		6		7		6		3		7		7¾
Bone		*1½		*1½		*1¾		*1		*1½		*1½
Coal	3	3	3	10	3		3	4		3	3	3½
Floor, shale.												
Thickness of bed	3	10½	4	6½	3	7¾	3	8		11½	4	¾
Thickness of sample	3	9	4	5	3	6	3	7		10	3	11¼

Section	G		H		I		J	
Laboratory No.	84066		84067		84068		84069	
Roof, sandy shale.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		6		6		6		6
Bone		*2		*3		*2		*2
Coal	3			9½	3		2	10
"Sulphur"	----	----		* ⅜	----	----	----	----
Coal	----	----	2	6	----	----	----	----
Floor, hard shale.								
Thickness of bed	3	8	4	⅞	3	8	3	6
Thickness of sample	3	6	3	9½	3	6	3	4

* Not included in sample.

Section A (sample 83795) was measured at face of 12 right entry off southwest slope; section B (sample 83796) was measured at face of back slope off 5 right entry; section C (sample 83797) was measured at face of main south entry; section D (sample 83798) was measured at face of 9 west off old southwest slope; section E (sample 83799) was measured at face of 13 left entry; section F (sample 83800) was measured at face of southwest slope; section G (sample 84066) was measured at face of left, section 14; section H (sample 84067) was measured at 1 right entry off main north, section 13; section I (sample 84068) was measured at face of 2 northeast, section 11; and section J (sample 84069) was measured at face of 1 northeast slope. The ultimate analysis of a composite sample made by combining face samples 83795 to 83800, inclusive, is given under laboratory No. 83801. The ultimate analysis of a composite sample, made by combining face samples 84066 to 84069, inclusive, is given under laboratory No. 84070.

System of mining, room and pillar. Coal was undercut with electric chain breast coal-cutting machines. A permissible explosive was used for breaking down coal and for brushing roof and floor. Machine cuttings were loaded out before blasting. Shaker screens were used. At time of sampling the daily output was 1,200 tons, all from advance workings.

DOLOMITE. DOLOMITE NO. 1 MINE

Analyses 80189 to 80193 (p. 23). Bituminous coal, Warrior field, from Dolomite No. 1 mine, a slope mine 545 feet above sea level at Dolomite, in sec. 12, T. 18 S., R. 5 W., on the Woodward Iron Co. Railroad, which connects with the Louisville & Nashville Railroad at Woodward. Coal bed, Pratt; slope, 30° (seam flat); strike N. 45° E.; thickness, 5 feet 6⅞ inches to 6 feet 9½ inches. Roof, sandstone; floor, hard fire clay. Cover at point of sampling, 600 feet. The bed was measured and sampled at four points by J. J. Forbes, June 13, 1921, as follows:

Sections of coal bed in Dolomite No. 1 mine

Section	A		B		C		D	
Laboratory No.	80189		80190		80191		80192	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		9½		10		9		10
Dirt band		⅜		—		—		—
"Rash" ("slate" and clay)		—		*9½		*4½		—
"Rash" ("slate" and bone mixed with coal)		—		—		—		*8
Coal		2½		10	3			9
Rock (middleman)	*1	5		—		*10		—
Clay band		—		*1		—		*1½
Coal		9½	2	6		9	2	1
"Slate"		* ¾		—		—		—
Rock		—		*9		—		*10½
Coal	2	3¼	1			—	1	
Floor, hard fire clay.								
Thickness of bed	5	6⅞	6	9½	5	8½	6	4
Thickness of sample	4	1⅛	5	2	4	6	5	6⅛

* Not included in sample.

Section A (sample 80189) was measured at face of 1 room off left entry off 11 cross entry; section B (sample 80190) was measured at 12 room off 14 left entry; section C (sample 80191) was measured at face of 8 room off 16 left entry; and section D (sample 80192) was measured at 10 room off 18 left entry. The ultimate analysis of a composite sample made by combining face samples 80189 to 80192, inclusive, is given under laboratory No. 80193.

System of mining, room and pillar. Coal was undercut by hand and machines; a permissible explosive was used. Revolving screens were used, and coal was washed; size produced, one-fourth inch. Output in 1920 was 360,000 tons. At the time of sampling the daily output was 1,300 tons, all from advance workings. Life of mine was estimated to be 15 years.

DOLOMITE. DOLOMITE NO. 3 MINE

Analysis 80183 to 80188 (p. 23). Bituminous coal, Warrior field, from Dolomite No. 3 mine, a slope mine at Dolomite on the Louisville & Nashville Railroad, connecting with the Woodward Iron Co. Railroad at Woodward, in sec. 5, T. 17, R. 4 W. Coal bed, Pratt; slope, 30° (vein flat); strike, N. 45° E.; thickness, 5 feet 4½ inches to 6 feet 4 inches. Roof, sandstone; floor, hard fire clay. The bed was measured and sampled at five points by J. J. Forbes, June 8, 1921, as described below:

Sections of coal bed in Dolomite No. 3 mine

Section	A		B		C		D		E	
Laboratory No.	80183		80184		80185		80186		80187	
Roof, sandstone.	Ft.	in.	Ft.	in.	Ft.	in.	Ft.	in.	Ft.	in.
Coal		6		6½		7		2¾	—	
Sandstone	—		—		—		—			*2
Bone		*2		*2¼		*3	—		—	
"Sulphur" band	—		—		—			5-16	—	
Coal	3		3		3	7		4½		5
Bone	—		—		—		—			*2
Rock (middleman)		*10½		*5½		*11	—		—	
Bone	—		—		—			*1¾	—	
Coal		10		2½	1		3	5	3	1
Rock (middleman)	—			*2½	—			*11		*9½
Coal	—			9	—		1	1½	1	1½
Floor, hard fire clay.										
Thickness of bed	5	4½	5	4¼	6	4	6	2 13-16	5	9
Thickness of sample	4	4	4	6	5	2	5	2 1-16	4	7½

* Not included in sample.

Section A (sample 80138) was measured at face of 4 right entry off 49 west entry; section B (sample 80184) was measured at face of 8 room off left entry off 50 east entry; section C (sample 80185) was measured at face of 49 west entry; section D (sample 80186) was measured at 4 left entry off 50 east entry; and section E (sample 80187) was measured at face of 7 left entry off 50 east entry. The ultimate analysis of a composite sample made by combining face samples 80183 to 80187 is given under laboratory No. 80188.

System of mining, room and pillar. Coal was undercut by hand and machines; a permissible explosive was used. Coal was screened at washer on revolving screens. Washers were used; sizes produced, one-quarter inch and under. At time of sampling the daily output was 1,800 tons, all run of mine. In 1921 life of mine was estimated at 15 years.

EDGEWATER. EDGEWATER MINE

Analyses 83817 to 83822, and 83865 (p. 23). Bituminous coal, Warrior field from Edgewater mine, a shaft mine at Edgewater on the Southern Railway. Coal bed, Pratt (upper level); roof, sandstone; floor, shale; thickness, 4 feet 11 inches to 5 feet 10 inches. Cover at point of sampling, about 300 feet. The bed was measured and sampled at six points by J. J. Forbes, January 4, 1922, as described below:

Sections of coal bed in Edgewater mine

Section	A		B		C		D		E		F	
Laboratory No.	83817		83818		83819		83820		83821		83822	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.												
Coal		3½		5½		6		5½		7½		6½
Bone		*2½		*1½		*2		*2½		*2		*1½
Coal	3	3	2	11	3	5	3	3	3	3	3	5
Shale		*9		*5		*7½		*8½		*5		*7¾
Coal	1	3	1	1½	1	2½	1			9		11
Floor, shale.												
Thickness of bed	5	9	5	½	5	11	5	7½	5	2½	5	7¾
Thickness of sample	4	9½	4	6	5	1½	4	8½	4	7½	4	10½

* Not included in sample.

Section A (sample 83817) was measured at face of 15 east entry off 2 north entry; section B (sample 83818) was measured at face of main west entry; section C (sample 83819) was measured at face of 6 west entry off 3 south entry; section D (sample 83820) was measured at face of 10 east entry off 2 north entry; section E (sample 83821) was measured at face of 24 room off 8 west entry off 2 north entry; section F (sample 83822) was measured at face of 14 west entry off 2 south entry. The ultimate analysis of a composite sample made by combining face samples 83817 to 83822 is given under laboratory No. 83865.

System of mining, panel, room and pillar. Coal was undercut by machine, and shot down with permissible explosives. Haulage was by electric motors. The coal was picked on tables and on loading boom. In 1914 life of mine was estimated at 40 years.

Analyses 83879 to 83885 (p. 23), from Edgewater mine, Pratt bed, lower level; thickness, 3 feet 8½ inches; cover at point of sampling, about 500 feet. The bed was measured and sampled at six points by J. J. Forbes, January 3, 1922, as follows:

Sections of coal bed in Edgewater mine

Section	A		B		C		D		E		F	
Laboratory No.	83879		83880		83881		83882		83883		83884	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.												
Coal		4¼		6½		4¾		7¾		7¼	3	3½
Bone		*2½		*2		*2		*1½		*2	----	----
Shale	----	----	----	----	----	----	----	----	----	----		*4½
Coal	4	4	2	3½	1	1		8½	3	8½		5
Shale		*7¼	----	----	----	----	----	----		*5½	----	----
"Sulphur band"	----	----		* ⅜		* ⅛		* ½	----	----	----	----
Coal		10½	2	3½	2	6	4			5	----	----
Shale	----	----		*3½		*4½	----	----	----	----	----	----
Coal	----	----	1	3	1		----	----	----	----	----	----
Floor, shale.												
Thickness of bed	6	4½	6	10⅜	5	6⅜	5	6¼	5	4¼	4	1
Thickness of sample	5	6¾	6	4½	4	11¾	5	4¼	4	8¾	3	8½

* Not included in sample.

Section A (sample 83879) was measured at face of 2 north heading; section B (sample 83880) was measured at face of 24 east entry; section C (sample 83881) was measured at face of 5 north entry; section D (sample 83882) was measured at face of 8 north entry; section E (sample 83883) was measured at face of 6 south entry; section F (sample 83884) was measured at face of 27 room off 1 south entry. The ultimate analysis of a composite sample, made by combining face samples 83879 to 83884, inclusive, is given under laboratory No. 83885.

Ensley. Bayview Mine

Analyses 83688 to 83693, 83829, and 83830 (p. 24). Bituminous coal, Warrior field, from Bayview mine, at Ensley. Coal bed, Pratt; roof, sandstone; floor, medium shale; thickness, 3 feet ½ inch to 5 feet 10¼ inches. Cover at point of sampling, 275 to 500 feet. The bed was measured and sampled at seven points by J. J. Forbes, December 20, 1921.

Sections of coal bed in Bayview mine

Section	A	B	C	D	E	F	G
Laboratory No.	83688	83689	83690	83691	83692	83693	83829
Roof, sandstone.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
Coal	6	3	4¼	6½	6	7¼	4¼
Bone	*2	*1⅞	*1¼	*1¾	*2¼	*1½	*1¾
Coal	2 9	2 8½	2 7	3 3	2 11	3 8½	2 8½
Shale (middleman)	—	—	—	*9½	*9½	*11	—
Coal	—	—	—	1 1½	1	1 3½	—
Floor, shale.							
Thickness of bed	3 5	3 1⅜	3 ½	5 10¼	5 4¾	6 7¾	3 2½
Thickness of sample	3 3	2 11½	2 11¼	4 11	4 5	5 7¼	3 ¾

* Not included in sample.

Section A (sample 83688) was measured at face of 3 room off 3 west north entry; section B (sample 83689) was measured at face of southwest heading; section C (sample 83690) was measured at face of 19 west heading; section D (sample 83691) was measured at face of 15 room off 11 south entry; section E (sample 83692) was measured at face of 22 room off 3 south; section F (sample 83693) was measured at face of 3 south entry; section G (sample 83829) was measured at face of 5 room off 5 south entry. The ultimate analysis of a composite sample made by combining face samples 83688 to 83693 and 83829 is given under laboratory No. 83830.

System of mining, room and pillar. Coal was undercut by machines; permissible explosives were used. At the time of sampling the daily output was 1,400 tons, of which 20 to 25 per cent came from advance workings. All coal was run of mine. Shaker screens were used, and coal was washed on jigs. In 1921 life of mine was estimated at 25 years.

Johns. Ajax Mine

Analyses 78762 to 78766 (p. 24). Bituminous coal, Blue Creek field, from Ajax mine, opened by a slope (23° pitch), seven-eighths mile from Johns, in sec. 19, T. 19 S., R. 5 W., on the Louisville & Nashville Railroad, near Adger. Mine output is transported by dinkey to railroad. Coal bed, Blue Creek; dip 85°; strike, S. 57° W.; thickness, 5 feet 10 inches to 8 feet 1½ inches. Roof, coal and shale; floor, same. The bed was measured and sampled at four points by J. J. Forbes, February 8, 1921, as described below:

Sections of coal bed in Ajax mine

Section	A		B		C		D	
Laboratory No.	78762		78763		78764		78765	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, coal and shale.								
Coal		2½	1	3		6	4	5
"Slate"		* ½	--------		--------		--------	
Dirt band	--------			¼	--------			1
Soft "slate"	--------		--------			*5	--------	
Coal	--------			6	2	3½		5
Rock		2½	--------		--------		--------	
Dirt band	--------			*1	--------		--------	
Dirty streak	--------		--------			¼	--------	
Rock (dirt)	--------		--------		--------			* ½
Coal		10	1		5			11
Bony coal		*6	--------		--------		--------	
Middleman	--------			*8	--------		--------	
Dirt	--------		--------		--------			½
Coal	2	4		10	--------		1	6
Middleman		6	--------		--------		--------	
Dirt band	--------			* ½	--------		--------	
Dirt and rock	--------		--------		--------			*1
Coal		1½	3	6	--------			10
Dirt		½	--------		--------		--------	
Coal		11	--------		--------		--------	
Dirt band		1	--------		--------		--------	
Coal		7	--------		--------		--------	
Floor, coal and shale.								
Thickness of bed	6	4½	7	10¾	8	2¾	8	4
Thickness of sample	5	10	7	1¼	7	9¾	8	2½

* Not included in sample.

Section A (sample 78762) was measured at face of 2 left heading; section B (sample 78763) was measured at face of 2 left heading, east side; section C (sample 78763) was measured at face of 1 left east heading; and section D (sample 78764) was measured at face of 1 left air course. The ultimate analysis of a composite sample made by combining face samples 78762 to 78765 is given under laboratory No. 78766.

The coal was hand cut and shot down with permissible explosives. Output in 1920 was 41,000 tons, and at the time of sampling, the daily output was 200 tons. Mine output was shipped to by-product plant. In 1921 life of mine was estimated at 12 years.

KIMBERLY. KIMBERLY No. 2 MINE

Analyses 83581 to 83586 (p. 25). Bituminous coal, Warrior field, from Kimberly No. 2 mine, a slope mine at Kimberly, in sec. 35, T. 14 S., R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Black Creek; flat; thickness, 1 foot 9 inches to 2 feet 3 inches. Roof, "slate"; floor, shale. There is a "sulphur" band in the center of the bed. Cover at point of sampling, 180 feet. The bed was measured and sampled at five points by J. J. Forbes, November 28, 1921, as described below:

Section A (sample 83581), representing 1 foot 10 inches of coal, was measured at face of 1 west entry, main south entry; section B (sample 83582), representing 3 feet of coal, was measured at face of main south entry; section C (sample 83583), representing 2 feet 3 inches of coal, was measured at face of main east entry; section D (sample 83584), representing 1 foot 9 inches of coal, was measured at face of main north entry; and section E (sample 83585), representing 1 foot 11 inches of coal, was measured at face of 2 northeast heading. The ultimate analysis of a composite sample made by combining face samples 83581 to 83585, inclusive, is given under laboratory No. 83586.

System of mining, room and pillar. Coal was shot off the solid. Output in 1920 was 26,083 tons. At the time of sampling the daily output was 216 tons per day, 15 per cent of which came from advance workings; all was run of mine. Coal was not screened. In 1921 life of mine was estimated at 15 years.

KIMBERLY. KIMBERLY No. 3 MINE

Analyses 83575 to 83580 (p. 25). Bituminous coal, Warrior field, from No. 3 Kimberly mine, a slope mine three-fourths mile north of Kimberly, in secs. 25 and 36, T. 14 S., R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Jefferson; flat; thickness, 2 feet 9 inches to 3 feet 9 inches. Roof, "slate," floor, shale. There are some sulphur "bands" interstratified. Cover at point of sampling, 160 feet. The bed was measured and sampled at five points by J. J. Forbes, December 28, 1921, as described below:

Sections of coal bed in Kimberly No. 3 Mine

Section	A		B		C		D		E	
Laboratory No.	83575		83576		83577		83578		83579	
Roof, "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	9	2		1	11	2	2		9½
Fire clay	*1	6		*6		*9		*10		
Bone										*1
Coal		4		3		7		4		1½
Bone										* ⅜
Coal									1	7½
Fire clay									*1	
Coal										1½
Floor, shale.										
Thickness of bed	3	7	2	9	3	3	3	4	3	9⅜
Thickness of sample	2	1	2	3	2	6	2	6	2	8

* Not included in sample.

Section A (sample 83575) was measured at face of 2 northeast heading; section B (sample 83576) was measured at face of 4 northeast heading; section C (sample 83577) was measured near face of 4 southeast heading; section D (sample 83578) was measured at face of 3 southeast heading; and section E (sample 83579) was measured at face of 2 southeast heading. The ultimate analysis of a composite sample, made by combining face samples 83575 to 83579, inclusive, is given under laboratory No. 83580.

System of mining, room and pillar. Coal was shot off the solid. Output in 1920 was 47,551 tons. At the time of sampling the daily output was 329 tons, 15 per cent of which came from advance workings; all was run of mine. In 1921 life of mine was estimated at 15 years.

LABUCO. LABUCO MINE

Analyses 78287 to 78302 (p. 25). Bituminous coal, Warrior field, from Labuco mine, a drift mine, at Labuco, 2 miles west of Praco, in sec. 32, T. 165, R. 5 W., on the Louisville & Nashville Railroad. Coal bed, Mary Lee; dip, 3 per cent; strike, east and west; thickness, 4 feet ½ inch to 6 feet 5 inches. Roof and floor, "slate." The bed was measured and sampled at five points by J. J. Forbes, January 14, 1921, as described below:

Sections of coal bed in Labuco mine

Section Laboratory No.	A 78297		B 78298		C 78299		D 78300		E 78301	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, hard "slate"; immediate roof, soft "slate."										
Bone	----		----			2	----			2½
Bone and dirty coal		*5		*5	----		----		----	
Coal	----			9	1	4	----		----	
Bone	----		----		----			4	----	
"Slate"	----			*3		*2	----			* ¾
Dirty coal		5	----		----		----		----	
Coal		8		5		5		3½	----	
"Slate"	----			*3	----			* ½	----	
"Sulphur" streak	----		----		----			1-16	----	
Coal	----			4	----		1	2½	1	2½
Rock (middleman)		*5	----			*4		*4½		*4
Coal		5	----			5		4		4
"Slate"		*3		*1	----		----			*2
Coal	1	10	1	6	----		----			2
Dirty coal	----		----			2	----		----	
Coal	----		----		1	2	----		----	
Dirt band	----		----		----			*2	----	
Coal	----		----		----			4	----	
Bone	----		----		----			*3	----	
Coal	----		----		----		1	8	----	
Floor, "slate."										
Thickness of bed	4	5	4		4	2	5	1-16	2	5¾
Thickness of sample	3	4	3		3	8	4	2 1-16	1	11

* Not included in sample.

Section A (sample 78297) was measured at face of 25 room off 2 right; section B (sample 78298) was measured at face of 19 room off 4 left entry; section C (sample 78299) was measured at 16 room off 6 left entry; section D (sample 78300) was measured at face of main slope entry; and section E (sample 78301) was measured at 16 room off 6 right entry. The ultimate analysis of a composite sample made by combining face samples 78297 to 78301, inclusive, is given under laboratory No. 78302.

System of mining, room and pillar. Coal was undercut by machine, and shot down with FF black blasting powder. Output in 1920 was 65,628 tons. At the time of sampling the daily output was 700 tons, 25 per cent of which came from advance workings; all was shipped as run of mine. Size of coal, 2½ inches; coal was picked on belt. In 1921 life of mine was estimated at 15 years.

LEWISBURG. MARY LEE NO. 1 MINE

Analyses 79585 and 78767 to 78770 (p. 25). Bituminous coal, Warrior field, from Mary Lee No. 1 mine, a slope mine at Lewisburg, in secs. 2, 35, 36, Ts. 16 and 17 S., R. 3 W. Coal bed, Mary Lee; dip, 13°; strike, northeast and southwest; thickness, 6 feet 3 inches to 7 feet 1 inch. Roof and floor, "slate." The bed was measured and sampled at four points by J. J. Forbes, February 7, 1921, as follows:

Sections of coal bed in Mary Lee No. 1 mine

Section	A		B		C		D	
Laboratory No.	78767		78768		78769		78585	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."								
Bone		*2		*1		*2		*2
Coal		5½		2	1		1	5
Bone	------			¼	------			*1½
Coal		¼		3	------			11
Bone	------			¼		½	------	
Coal		1		2½		1	------	
Bone	------			½	------		------	
Coal		¼		3½	------		------	
Bone	------			¼		1	------	
Coal		½		2½		1	------	
Bone	------	---		1½	------		------	
Coal	------	---		2½	------		------	
Bony coal		* ½	------		------		------	
Bone	------			*1		*2½	------	
Coal		2½		3		2¼	------	
Bone	------			1½	------		------	
Coal	------			1	------		------	
Bone		*1		*2		*2	------	
Rock ("middleman")	------		*1	1	------			*1
Coal		2½	------			6	------	
Bone	------			*1½	------			*2½
Coal	------			1	------		2	5
"Slate"		* ¾	------			*8	------	
Bone	------			½	------			1
Coal		2½		4	------			10
Bone	------			* ¼		*4	------	
Coal	------			2	------		------	
Bone		¼		½	------		------	
Coal		2		3	2	5	------	
Bone		¼		½	------		------	
Coal		½		11	------		------	
"Rash"	------		------			*3	------	
Rock ("middleman")	*1	1	------		------		------	
Coal		2	------			8	------	
Bone	------			1½	------		------	
Coal	------			6	------		------	
Bone		*1½	------		------		------	
Coal		10	------		------		------	
"Rash		*1		*5	------		------	
Coal	2	4		6	------		------	
Floor, "slate."								
Thickness of bed	6	5¾	7	1	6	10¼	6	3
Thickness of sample	4	10	5	3½	5	¾	5	8

* Not included in sample.

Section A (sample 78767) was measured at face of 18 east entry; section B (sample 78768) was measured at 17 east entry cross face; and section C (sample 78769) was measured at face of 13 west cross entry off slope entry; section D (sample 79585) was measured at face of "A" entry. The ultimate analysis of a composite sample made by combining face samples 78767 to 78769 is given under laboratory No. 78770.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive. Coal was screened in revolving screens; sizes produced, lump, nut, and slack. All under 6 inches was washed and later mixed with lump. At the time of sampling the daily output was 1,500 tons, 90 per cent of which was from advance workings; all was run of mine. In 1921 life of mine was estimated at 15 years.

New Castle. New Castle No. 2 Mine

Analyses 79502 to 79506 (p. 27). Bituminous coal, Warrior field, from New Castle No. 2 mine, a slope min 482.54 feet above sea level, at New Castle, in secs. 13, 7, 18, T. 16 S., Rs. 2 and 3 W., on the Louisville & Nashville Railroad.

Coal bed, Mary Lee; thickness, 3 feet to 5 feet 10½ inches. Roof and floor, "slate." Cover at point of sampling, 300 to 350 feet. The bed was measured and sampled at four points by J. J. Forbes, April 5, 1921, as described below:

Sections of coal bed in New Castle No. 2 mine

Section	A		B		C		D	
Laboratory No.	79502		79503		79504		79505	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."								
Coal		10½		6		8	----------	
"Rash"		*1½		* ½		*1½		*2
Coal	1			8	1	2½		5
"Slate" and "rash"	----------		----------		----------			*5½
Bone		*1	----------		----------		----------	
Rock	----------			*2		*1½	----------	
Coal		2		5½		6		6
Dirt	----------		----------		----------			* ½
Rock		*4½		*9		*6	----------	
Coal		5	1	7	2	6		1½
Rock	*1		----------		----------			*3½
"Rash"	----------		----------			*6	----------	
Coal	2	3	----------		----------			5½
Rock	----------		----------		----------		*1	
Coal	----------		----------		----------		1	6
"Rash"	----------		----------		----------			*4
Floor, "slate."								
Thickness of bed	6	3½	4	2	6	1½	5	3½
Thickness of sample	4	8½	3	2½	4	10½	3	

* Not included in sample.

NOTE.—1,700 feet of slopes on 15° pitch, and below fault bed averages about 1½ per cent. No. 2 and 6 mines are approximately 5,000 feet apart.

Section A (sample 79502) was measured at face of 9 left entry; section B (sample 79503) was measured at face of slope entry; section C (sample 79504) was measured at face of 10 right entry; and Section D (sample 79505) was measured at face of 4 room, 12 left entry. The ultimate analysis of a composite sample made by combining face samples 79502 to 79505 is given under laboratory No. 79506.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive. Coal was screened with shaker screens and washed after being crushed. In 1919 the output was 160,806 tons. At the time of sampling the daily output was 1,100 tons, 32 per cent of which was from advance workings. In 1921 life of mine was estimated at 15 years.

NEW CASTLE. NEW CASTLE NO. 6 MINE

Analyses 80099 to 80104 (p. 27). Bituminous coal, Warrior field, from New Castle No. 6 mine, a slope mine 485 feet above sea level, at New Castle, in sec. 17, T. 16 S., R. 2 W., on the Louisville & Nashville Railroad. Coal bed, New Castle; dip, 13½ per cent; strike, N. 25° W.; thickness, 5 feet 6 inches to 5 feet 11 inches. Roof, shale; floor, soft fire clay. Cover at point of sampling, about 100 feet. The bed was measured and sampled at five points by J. J. Forbes, June 2, 1921, as follows:

Sections of coal bed in New Castle No. 6 mine

Section	A		B		C		D		E	
Laboratory No.	80099		80100		80101		80102		80103	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, shale.										
Coal		10	1		1		2	2	2	4
Dirt band		*1½	----			*1¼	----		----	
"Slate"	----			*1½	----		----		----	
Rock	----		----		----			*3		*4
Coal	1	1	1		1	2		5		4
"Slate"		*1½	----		----		----		----	
Rock	----			*3		*3		*3		*1
Coal		6		6		4	2		1	11
"Slate" (middleman)		*6	----			*3	----		----	
Rock	----			*3	----		----		----	
"Rash"	----		----		----			*6		*6
Coal	2			1	2		----		----	
"Rash"		*6	----			*6	----		----	
Rock	----			*2½	----		----		----	
Coal	----		2		----		----		----	
"Rash"	----			*6	----		----		----	
Floor, soft fire clay.										
Thickness of bed	5	8	5	11	5	7¼	5	6	5	6
Thickness of sample	4	5	4	7	4	6	4	7	4	7

* Not included in sample.

Section A (sample 80099) was measured at face of 48 room off 5 left entry (200 feet from entry face); section B (sample 80100) was measured at face of 4 left entry; section C (sample 80101) was measured at rib of 4 left entry, at slope; section D (sample 80102) was measured at face of 5 right entry; and section E (sample 80103) was measured at face of 1 room off 5 right entry. The ultimate analysis of a composite sample made by combining face samples 80099 to 80103 is given under laboratory No. 80104.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive, and was washed at central washer. Coal was picked in mine and on cars; sizes produced, 2 inches down. Output in 1920 was 79,231 tons. At the time of sampling the daily output was 325 tons, all from advance workings. In 1921 life of mine was estimated at 6 months.

PALOS. RISCO MINE

Analyses 86868 to 86873 (p. 28). Bituminous coal, Warrior field, Birmingham district, from Risco mine, a slope mine 272 feet above sea level, 1 mile southwest of Palos, in sec. 27, T. 16 S., R. 5 W., on the Southern Railway. Coal bed, Mary Lee; dip, 10 per cent; thickness, 5 feet 5 inches to 8 feet 7 inches. Roof and floor, sandy shale. The bed was measured and sampled at five points by J. J. Forbes, August 28, 1922, as follows:

Sections of coal bed in Risco mine

Section	A		B		C		D		E	
Laboratory No.	86868		86869		86870		86871		86872	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandy shale.										
Coal	2		1	2	1	8¼	1	8	1	2
Bone		*1¾						*2		
Shale				*4		*2¼				*2
Coal		2½		5		3½		3½		5½
Shale	*1	9½		*8½	*1	5	*1	14½	1	
Bone and shale		*5								
Coal			1	10				7	1	7
Bone						*5				
Coal	2	3½			1	2				
Shale				*1						*1
"Rash"								*2		
Shale		* ¾								
Coal				1			1	2		4½
Bone						*2½				
Coal	1	5				10				
Bone				* ½						
Shale									*1	6
Coal				3						4
Shale			*2	0		*1½				
Bone						*11				*2
Coal			1	8					1	2
Floor, sandy shale.										
Thickness of bed	8	4	8	7	7	3	5	5	8	0
Thickness of sample	5	11	5	5	3	11¾	3	8½	5	1

* Not included in sample.

Section A (sample 86868) was measured at face of 5 room off 10 left entry; section B (sample 86869) was measured at face of 8 room off 12 right entry; section C (sample 86870) was measured at face of main slope; section D (sample 86871) was measured at face of 9 room off 11 left entry; and section E (sample 86872) was measured at face of 13 left entry. The ultimate analysis of a composite sample made by combining face samples 86868 to 86872, inclusive, is given under laboratory No. 86873.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. Coal was screened and picked; sizes produced, 1 inch and under. All coal was washed. At the time of sampling the daily output was 550 tons, of which 50 per cent was from advance workings. In 1920 life of mine was estimated at 50 years. Mine was idle in 1919.

PRATT CITY. No. 1 SHAFT MINE

Analyses 83716 to 83720 and 83828 (p. 29). Bituminous coal, Warrior field, from No. 1 shaft mine, a shaft mine about 500 feet above sea level, 1 mile northwest of Pratt City. Coal bed, Pratt; flat; strike, N. 45° E.; thickness, 3 feet 7¾ inches to 4 feet 1 inch. Roof, sandstone; floor, shale. Cover at point of sampling, about 225 to 300 feet. The bed was measured and sampled at five points, December 22, 1921, by J. J. Forbes.

Sections of coal bed in No. 1 shaft mine

Section	A		B		C		D		E	
Laboratory No.	83716		83717		83718		83719		83720	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.										
Coal		6		6		6		6		6
Bone		*2		*2		*1¾		*1¾		*2
Coal	3	3	3	7	3	1¾	3	1¾	3	7
Floor, shale.										
Thickness of bed	3	11	4	3	3	9½	3	9½	4	3
Thickness of sample	3	9	4	1	3	7¾	3	7¾	4	1

* Not included in sample.

Section A (sample 83716) was measured at rib off No. 6 slope 19 right entry; section B (sample 83717) was measured at slope pillar between 6 and 7 right entries; section C (sample 83718) was measured at slope stump, between 6 and 7 right entries; section D (sample 83719) was measured at face of 1 room off 4 left (McCardle slope); and section E (sample 83720) was measured at face of 7 room off 16 right entry. The ultimate analysis of a composite sample made by combining face samples 83716 to 83720 is given under laboratory No. 83828.

System of mining, room and pillar. Coal was undercut by pick; permissible explosives were used. All coal was mined from pillars and was all washed and picked. In 1921 the life of the mine was estimated to be very short. At the time of sampling, the daily output was 350 tons.

PRATT CITY. HAMILTON SLOPE MINE

Analyses 83683 to 83687 and 83824 (p. 29). Bituminous coal, Warrior field, from Hamilton slope mine. Coal bed, Mary Lee; thickness, 6 feet 9⅛ inches to 8 feet 5⅝ inches. Roof, sandstone; floor, fairly soft shale. Cover at point of sampling, 250 to 540 feet. The bed was measured and sampled at five points by J. J. Forbes, December 19, 1922, as described below:

Sections of coal bed in Hamilton slope mine

Section	A		B		C		D		E	
Laboratory No.	83683		83684		83685		83686		83687	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.										
Coal	1	7½	1	8	1	5	1	6	1	7
Bone		* ⅞		* ⅜		* ⅞		*1		*1
Coal		4¼		4¾		4¼		4¼		4¼
Shale		*2		*1¾		*1		*2		*3
Coal		7		6¼		6½		5		6½
Shale	*1	6	*1	4½	*1	4½	*1	5	*1	4½
Coal	3	3	4	4	2	11	3	2½	4	
Floor, fairly soft shale.										
Thickness of bed	7	6⅝	8	5⅝	6	9⅛	7	1¾	8	2¼
Thickness of sample	5	9¾	6	11	5	2¾	5	5¾	6	5¾

* Not included in sample.

Section A (sample 83683) was measured at face of main slope; section B (sample 83684) was measured at face of right entry 3,200 feet from outside slope; section C (sample 83685) was measured at face of air course 5,000 feet from mine mouth; section D (sample 83686) was measured at face of 1 left entry; and section E (sample 83687) was measured at face of 5 right entry. The ultimate analysis of a composite sample made by combining face samples 83683 to 83687 is given under laboratory No. 83824.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. At the time of sampling the daily output was 600 tons, all run of mine from advance workings. In 1921 life of mine was estimated at 30 years.

PRATT CITY. WYLAM NO. 8 MINE

Analyses 83791 to 83794 and 83825, and 83789, 83790, and 83826 (p. 29). Bituminous coal, Warrior field, from Wylam No. 8 mine, a slope mine about 500 feet above sea level, on the Birmingham Southern Railroad. Coal beds, Pratt and America; flat; strike, N. 45° E.; thickness, 4 feet 2 inches to 5 feet 4¼ inches. Roof, sandy shale. Cover at point of sampling, 275 to 390 feet. The beds were measured at six points, December 29, 1921, by J. J. Forbes, as described below:

Sections of coal beds in Wylam No. 8 mine

Section	A		B		C		D		E		F	
Laboratory No.	83791		83792		83793		83794		83789		83790	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandy shale.												
Coal		9		5		11	1	3½	1	6	1	7¾
Bone		*1½		*3		*2	------		------		------	
Shale	------		------		------			*3½		*5		*4¾
Coal	3	3½	3	6	3	3½		3½	1	8½	1	8½
Shale	------		------		------			*1¾		*9½		*6
Coal	------		------		------		1	3½		8½	1	1¼
Shale	------		------		------			*3¼	------		------	
Coal	------		------		------		1	3	------		------	
Thickness of bed	4	2	4	2	4	4½	4	10	5	1½	5	4¼
Thickness of sample	4	½	3	11	4	2½	4	1½	3	11	4	5½

* Not included in sample.

Section A (sample 83791) was measured at face of 5 west entry off 12 west cross entry; section B (sample 83792) was measured at face of 18 room off 17 east air course; section C (sample 83793) was measured at face of 12 west cross heading; section D (sample 83794) was measured at left rib 75 feet outby face of new slope; section E (sample 83789) was measured at face of 2 room off new slope, air course; and section F (sample 83790) was measured at face of new slope. Ultimate analyses of composite samples made by combining face samples 83791 to 83793 and 83789, 83790, and 83794 are given under laboratory Nos. 83825 and 83826, respectively.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. At the time of sampling the daily output was 800 to 850 tons, all run of mine. All coal was washed and picked. The output of this mine, crushed and washed to pea size, was shipped to the company's by-product coking plant near Fairfield, for its blast furnace. The by-products are recovered.

SAYRE. SAYRE MINE

Analyses 81650 to 81656 (p. 30). Bituminous coal, Warrior field, Birmingham district, from Sayre mine, a slope mine 2,400 feet N. 80° E. from Sayre, in sec. 28, T. 15 S., R. 5 W., on the Louisville & Nashville Railroad. Coal bed, Mary Lee; dip, 10° 45′; strike, N. 60° E.; thickness, 3 feet 11 inches to 4 feet 3⅜ inches. Roof, "slate" and sandstone; floor, "slate." The bed was measured and sampled at six points by J. J. Forbes, September 14, 1921, as described below:

Sections of coal bed in Sayre mine

Section	A		B		C		D		E		F	
Laboratory No.	81650		81651		81652		81653		81654		81655	
Roof, "slate" and sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	1	1	1		11	1		1	2	1	1½
Rock		*1		*1		*1		*1		*1½		*2
Coal		5		6		6		6		5½		6
Rock (middleman)		*3		*5½		*4		*4		*5		*2½
Coal		1½		1½	2	1		1½		5½	1	8
"Sulphur"		¼		¼	----------			¾	----------		----------	
"Slate"	----------		----------		----------		----------			¼	----------	
Rock	----------		----------		----------		----------		----------			*1½
Coal		11		1	----------		1	6	1	2½		6
Rock		*1	----------		----------			* ⅜	----------		----------	
"Slate"	----------			½	----------		----------			*2	----------	
Coal	1	4		¾	----------			7		3	----------	
"Slate"	----------			¼	----------		----------		----------		----------	
Coal	----------		1	4	----------		----------		----------		----------	
"Slate"	----------			1	----------		----------		----------		----------	
Coal	----------			5	----------		----------		----------		----------	
Floor, "slate."												
Thickness of bed	4	3¾	4	3¾	3	11	4	2⅛	4	3¼	4	3½
Thickness of sample	3	10¾	3	9¾	3	6	3	8¾	3	6¾	3	9½

* Not included in sample.

Section A (sample 81650) was measured at face of entry off 7 room off 2 cross entry off 12 left entry; section B (sample 81651) was measured at face of 12 left entry; section C (sample 81652) was measured at face of 14 left entry; section D (sample 81653) was measured at face of 16 left entry; section E (sample 81654) was measured at face of 16 right entry; and section F (sample 81655) was measured at face of 15 right entry. The ultimate analysis of a composite sample made by combining face samples 81650 to 81655 is given under laboratory No. 81656.

System of mining, room and pillar. Coal was undercut by machine. Permissible explosives were used. Coal was screened on shaker screens and washed. Coal was picked on car.

Output in 1920 was 122,351 tons, and at the time of sampling the daily output was 600 tons, all from advance workings. In 1921 life of mine was estimated at 100 years.

WARRIOR. BELTONA NEW TIPPLE

Analyses 83311 to 83316 (p. 30). Bituminous coal, Warrior field, from Beltona New Tipple, a drift mine in sec. 33, T. 14 S., R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Jefferson; thickness, 2 feet 5½ inches to 2 feet 10 inches. Roof, hard "slate;" floor, hard shale. Cover at point of sampling, 100 to 150 feet. The bed was measured and sampled at five points by J. J. Forbes, November 29, 1921, as described below:

Sections of coal bed in Beltona New Tipple

Section Laboratory No.	A 83311		B 83312		C 83313		D 83314		E 83315	
Roof, hard "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		9		9		9		9		9
"Rash" (bone, "slate," and coal)		*3		*2½	----------		----------		----------	
Dirt band	----------		----------			¼	----------		----------	
"Slate"	----------		----------		----------			*1		*1
Coal	1	10	1	6		1¼	2		2	
Dirt band	----------		----------			¼	----------		----------	
Coal	----------		----------			3¼	----------		----------	
"Sulphur"	----------		----------			* ¾	----------		----------	
Coal	----------		----------			11	----------		----------	
"Mother coal"	----------		----------			⅜	----------		----------	
Coal	----------		----------			8¼	----------		----------	
Floor, hard shale.										
Thickness of bed	2	10	2	5½	2	11⅛	2	10	2	10
Thickness of sample	2	7	2	3	2	10⅜	2	9	2	9

* Not included in sample.

Section A (sample 83311) was measured at face of 1 cross entry off 4 right entry; section B (sample 83312) was measured at face of main east entry; section C (sample 83313) was measured at 4 right entry off 3 cross entry; section D (sample 83314) was measured at face of 3 left entry north main west entry; and section E (sample 83315) was measured at face of main west entry. The ultimate analysis of a composite sample made by combining face samples 83311 to 83315 is given under laboratory No. 83316.

System of mining, room and pillar. Coal was not screened but was picked on car. All was run of mine. Output in 1920 was 156,000 tons. At the time of sampling the daily output was 1,000 tons, of which 50 per cent was from advance workings.

WARRIOR. LANGLEY MINE

Analyses 81929 to 81932 (p. 31). Bituminous coal, Warrior field, from Langley mine, a drift mine 3 miles west of Warrior, in sec. 17, T. 14 S., R. 2 W., on the Louisville & Nashville Railroad. Coal bed, Black Creek; dip, 2 per cent; strike, northeast and southwest; thickness, 1 foot 10 inches to 2 feet 3 inches. Roof, "slate"; floor, fire clay. Cover at point of sampling, 50 to 100 feet. The bed was measured and sampled at three points by J. J. Forbes, September 22, 1921, as described below:

Section A (sample 81929), representing 2 feet 3 inches of coal, was measured at face of main entry; section B (sample 81930), representing 1 foot 11 inches of coal, was measured at face of 1 left entry; and section C (sample 81931), representing 1 foot 10 inches of coal, was measured at face of 1 right entry, off main entry. The ultimate analysis of a composite sample made by combining face samples 81929 to 81931 is given under laboratory No. 81932.

System of mining, room and pillar. Coal was mined by hand, and was picked in the mine. The entire output (run of mine) was used at the company brick plant, Sibleyville, Ala. At the time of sampling the daily output was 50 tons, of which 15 per cent was from advance workings. The life of mine in 1921 was estimated to be 5 years.

WARRIOR. PRITCHETT MINE, NO. 1 OPENING

Analyses 83783 to 83788 (p. 31). Bituminous coal, Warrior field, from Pritchett mine, No. 1 opening, a drift mine 2 miles south of Warrior, in secs. 26 and 27, T. 14 S., R. 5 W., on the Louisville & Nashville Railroad. Coal bed, Jefferson; dip, about flat; strike, southeast; thickness, 2 feet 4¼ inches to 3 feet 3¼ inches. Roof, sandstone; floor, soft shale. Cover at point of sampling, 150 to 200 feet. The bed was measured and sampled at five points by J. J. Forbes, January 10, 1922, as described below:

Sections of coal bed in Pritchett mine, No. 1 opening

Section	A		B		C		D		E	
Laboratory No.	83783		83784		83785		83786		83787	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.										
Coal		11½		11		10		9		8½
Shale (soft)*		*3		*2		*2		*1½		*1
Coal	1		1	6	1	4	1			10¾
Clay band*		* ¾		* ½	------			*7¼		*3
Soft shale*	------		------			*3	------		------	
Coal		5¼		6		6		9½		5
Floor soft shale.										
Thickness of bed	2	8½	3	1½	3	1	3	3¼	2	4¼
Thickness of sample	2	4¾	2	11	2	8	2	6½	2	¼

* Not included in sample.

Section A (sample 83783) was measured at face of 5 room off 4 left entry; section B (sample 83784) was measured at face of 5 left entry; section C (sample 83785) was measured at face of 1 left entry; section D (sample 83786) was measured at face of north entry; and section E (sample 83787) was measured at face of straight entry. The ultimate analysis of a composite sample made by combining face samples 83783 to 83787 is given under laboratory No. 83788.

System of mining, room and pillar. Coal was undercut with punchers and shot off the solid with black blasting powder. Coal was picked in mine and on cars. Output in 1921 was 72,000 tons. At the time of sampling the daily output was 400 tons, of which 20 per cent came from advance workings. In 1921 life of mine was estimated at 30 years.

WYLAM. WYLAM NO. 5 MINE

Analyses 83721 to 83725, and 82823 (p. 31). Bituminous coal, Warrior field, from Wylam No. 5 mine, a slope mine about 500 feet above sea level at Wylam. Coal bed, Pratt; dip, flat; strike N. 45° E.; thickness, 3 feet 2 inches to 4 feet 4½ inches. Cover at point of sampling, 300 feet. The bed was measured and sampled at five points, December 23, 1921, by J. J. Forbes, as described below:

Sections of coal bed in Wylam No. 5 mine

Section	A		B		C		D		E	
Laboratory No.	83721		83722		83723		83724		83725	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		6		7¼		7¾		8		6
Bone		*1¾		*2		*1½		*2		*1½
Coal	3	4½	3	3½	3	7¼	3	2	2	6½
Thickness of bed	4	¼	4	¾	4	4½	4		3	2
Thickness of sample	3	10½	3	10¾	4	3	3	10	3	½

* Not included in sample.

Section A (sample 83721) was measured at face of 20 room off 38 west, between 1 and 2 cross entries; section B (sample 83722) was measured at neck of 22 room off 25 west entry; section C (sample 83723) was measured at face of 4 room off 38 west, between 1 and 2 cross entries; section D (sample 83724) was measured at face of 20 room off 25 west cross entry; and section E (sample 83725) was measured at face of 1 room off 38 east entry. The ultimate analysis of a composite sample made by combining face samples 83721 to 83725 is given under laboratory No. 83823.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. At the time of sampling the daily output was 600 tons, all run of mine. Shaker screens and jig washers were used. The output of this mine was crushed and washed to a fine pea size, and shipped to the company's by-product coking plant near Fairfield for its blast furnace. The by-products were recovered.

MARION COUNTY

BRILLIANT. BRILLIANT NO. 5 MINE

Analyses 79573 to 79579 (p. 32). Bituminous coal, Warrior field, from Brilliant No. 5 mine, a drift mine about 500 feet above sea level in sec. 14, T. 12 S., R. 12 W. on the Illinois Central Railroad. Coal bed, Black Creek; practically horizontal; cleat not well defined; thickness, 2 feet 4 inches to 2 feet 7 inches. Roof, sandstone; floor, hard fire clay. Cover at point of sampling, 125 feet. The bed was measured and sampled at four points by J. J. Forbes, April 14, 1921, as described below:

Sections of coal bed in Brilliant No. 5 Mine

Section	A		B		C		D	
Laboratory No.	79573		79574		79575		79576	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
Coal	2	4	2	6	2	6	1	
Dirt band								* ½
Coal							1	6½
Floor, hard fire clay.								
Thickness of bed	2	4	2	6	2	6	2	7
Thickness of sample	2	4	2	6	2	6	2	6½

* Not included in sample.

Section A (sample 79573) was measured at face of 13 left entry; section B (sample 79574) was measured at face of 11 left entry; section C (sample 79575) was measured at face of main entry; and section D (sample 79576) was measured at face of 11 right entry. The ultimate analysis of a composite sample made by combining face samples 79573 to 79576 is given under laboratory No. 79577.

System of mining, room and pillar. Coal was undercut by machine; FFF black blasting powder and 40 per cent dynamite were used. Coal was picked on car and screened with shaker and revolving screens, giving lump coal, 46 per cent.

Output in 1920 was 15,325 tons. At the time of sampling the daily output was 100 tons, all from advance workings. In 1921 life of mine was estimated at 3 years.

BRILLIANT. BRILLIANT NO. 7 MINE

Analyses 79578 to 79584 (p. 32). Bituminous coal, Warrior field, from Brilliant No. 7 mine, a drift mine 500 feet above sea level, 1 mile south of Brilliant, in secs. 14 and 23, T. 12 S., R. 12 W., on the Illinois Central Railroad. Coal bed, Black Creek; thickness, 2 feet 2 inches to 2 feet 5½ inches. Roof, sandstone; floor, hard fire clay. Cleat not well defined. Cover at point of sampling, 40 to 75 feet. The bed was measured and sampled at six points by J. J. Forbes, April 16, 1921, as described below:

Sections of coal bed in Brilliant No. 7 mine

Section	A		B		C		D		E		F	
Laboratory No.	79578		79579		79580		79581		79582		79583	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.												
Coal	2	2					2	4	2	4		
"Rash"				*1½		*1						*1
Coal			2	4	2	4					2	4
Floor, hard fire clay.												
Thickness of bed	2	2	2	5½	2	5	2	4	2	4	2	5
Thickness of sample	2	2	2	4	2	4	2	4	2	4	2	4

* Not included in sample.

Section A (sample 79578) was measured at face of 7 left entry off No. 1 straight entry; section B (sample 79579) was measured at face of main entry; section C (sample 79580) was measured at face of 1 right cross entry off 6 right entry; section D (sample 79581) was measured at face of 6 right entry; section E (sample 79582) was measured at face of 7 right entry; and section F (sample 79583) was measured at face of 8 left entry. The ultimate analysis of a composite sample made by combining face samples 79578 to 79583 is given under laboratory No. 79584.

System of mining, room anad pillar. Coal was undercut by machine; a permissible explosive was used. Coal was picked on car, and screened on shaking screens; output in 1920 was 34,119 tons. At the time of sampling the daily output was 225 tons, all from advance workings. In 1921 life of mine was estimated at 20 years.

ST. CLAIR COUNTY

ACMAR. NEW ACTON MINE

Analyses 84944 to 84948 (p. 32). Bituminous coal, Cahaba field, Birmingham district, from New Acton mine, a slope mine 572 feet above sea level, at Acmar, in sec. 26, T. 16 S., R. 1 E., on the Central of Georgia Railroad. Coal bed, Helena; dip, 23 per cent; strike, northeast and southwest; thickness, 6 feet 9 inches to 10 feet 5 inches. Roof, shale; floor, hard shale. Cover at point of sampling, 50 feet. The bed was measured and sampled at four points by J. J. Forbes, March 24, 1922, as follows:

Sections of coal bed in New Acton mine

Section	A		B		C		D	
Laboratory No.	84944		84945		84946		84947	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, shale.								
Coal	4	7½	2	10½	2	9½	1	5
Shale (middleman)	*3	6	*1	3½	*1	2½	*1	11
Coal	2	3½		6		6		6
Shale	------	------		*7¾		*9	*1	2
Coal	------	------	2		1	6	2	5
Floor, hard shale.								
Thickness of bed	10	5	7	3¾	6	9	7	5
Thickness of sample	6	11	5	4½	4	9½	4	4

* Not included in sample.

Section A (sample 84944) was measured at face of 4 right entry off slope entry; section B (sample 84945) was measured at face of 5 right entry off slope entry; section C (sample 84946) was measured at face of 4 room off 1 left entry off slope entry; and section D (sample 84947) was measured at face of slope below 5 left entry. The ultimate analysis of a composite sample, made by combining face samples 84944 to 84947, is given under laboratory No. 84948.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder and permissible explosives. Coal was picked on car and belt, and screened with shaking screens. The maximum size washed was under 3 inches. Sizes produced, lump over 4 inches, nut over 3 inches. Output in 1921 was 40,000 tons. At the time of sampling the daily output was 225 tons, of which 25 per cent was from advance workings. In 1921 life of mine was estimated at 2 years.

MARGARET. MARGARET NO. 3 MINE

Analyses 79270 to 70275 (p. 33). Bituminous coal, Cahaba field, from Margaret No. 3 mine, a slope mine 540 feet above sea level, 1 mile northeast of Margaret, in sec. 31, T. 15 S., R. 2 W., on the Central of Georgia Railroad. Coal bed, Harkness; dip, 6°; strike, S. 40° W.; thickness, 5 feet 3 inches to 6 feet 8 inches. Roof, sandy "slate"; floor, soft shale. Cover at point of sampling, 210 to 300 feet. The bed was measured and sampled at five points by J. J. Forbes, March 16, 1921, as described below:

Sections of coal bed in Margaret No. 3 mine

Section	A		B		C		D		E	
Laboratory No.	79270		79271		79272		79273		79274	
Roof, sandy "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Bone		*5	----		----		----		----	
"Rash"	----			*4½	----		----		----	
Coal	----		----			5	----			3
Shale		*7½	----			*8		*7		*8
Coal		8		3½		7		9		4
Shale		*11		*5		*8½		*7½	----	
Coal	----			8½	----			7	----	
"Mother coal"	----		----		----		----			*1
Coal		9	----			8	----			3
Shale		*8		*10		*8		*6		*8
Coal	1	3		8	1	2	1			8
Shale	----			7	----		----		----	
"Rash"		*4½	----			*5½		*4½	----	
Coal	----		1	4	----			10	----	
Shale	----		----		----		----			*9
Coal	1		----		----		----			8
"Rash"	----			*5½	----		----			*8
Coal	----			7		11	----			11
Floor, soft shale.										
Thickness of bed	6	8	6	3	6	3	5	3	5	11
Thickness of sample	3	8	3	7	3	9	3	2	3	1

* Not included in sample.

Section A (sample 79270) was measured at face of cross entry off 7 north entry; section B (sample 79271) was measured at face of 6 north entry; section C (sample 79272) was measured at face of 5 north entry; section D (sample 79273) was measured at face of 4 north entry; and section E (sample 79274) was measured at cross entry between 3 and 4 north entries. The ultimate analysis of a composite sample made by combining face samples 79271 to 79274 is given under laboratory No. 79275.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. It was screened on shaking screens and washed; sizes produced, nut and slack, which were washed separately and later mixed. Lump at mine was hand picked on belt. Output in 1920 was 130,000 tons. At the time of sampling the daily output was 425 tons, 15 per cent from advance workings. In 1921 life of mine was estimated at 8 years.

MARGARET. MARGARET NO. 5 MINE

Analyses 84991 to 84995 (p. 33). Bituminous coal, Cahaba field, Birmingham district, from Margaret No. 5 mine, a slope mine 525 feet above sea level, 3 miles north of Margaret, in sec. 12, T. 15 S., R 2 E., on the Central of Georgia Railroad. Coal bed, Harkness; dip, 25 per cent; strike, northeast and southwest; thickness, 5 feet 9½ inches to 6 feet 6¾ inches. Roof and floor, hard shale; cover at point of sampling, 500 to 600 feet. The bed was measured and sampled at five points by J. J. Forbes, March 23, 1922, as described below:

Sections of coal bed in Margaret No. 5 mine

Section	A		B		C		D		E	
Laboratory No.	84991		84992		84993		84994		84995	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, hard shale.										
Coal		4¼		2¾		1¾		3		2½
Shale		*3½		*6		*5		*4¾		*7¾
Coal		9½		11		2		10		10
Shale		*4¼		*7¼	----			*11		*7¼
"Mother coal"	----		----			¾	----		----	
Coal		7¾		8½		4		10¼		8½
Shale		*4¼		*2½	----			*3½		*4¾
"Mother coal"	----		----			¾	----		----	
Coal	1			9½		4	1			11
"Rash"		*10	----		----			*10	*1	
Shale	----			*7¾		*7¼	----		----	
Coal	1	4	1	2		7¼	1	5	1	3
Shale	----		----			*2	----		----	
Coal	----		----			11	----		----	
"Rash" (shale)	----		----			*7¼	----		----	
Coal	----		----		1	6	----		----	
Rock	----		----			*1	----		----	
Floor, hard shale.										
Thickness of bed	5	11½	5	9¼	6		6	9½	6	6¾
Thickness of sample	4	1½	3	9¾	2	1½	4	4¼	3	11

* Not included in sample.

Section A (sample 84991) was measured near face of slope 150 feet below 5 right entry; section B (sample 84992) was measured at face of 5 right entry; section C (sample 84993) was measured at face of 4 left entry; section D (sample 84994) was measured at face of 5 left entry; and section E (sample 84995) was measured at face of 4 right entry. The ultimate analysis of a composite sample made by combining face samples 84991 to 84995 is given under laboratory No. 84996.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives and black blasting powder. It was picked on car and screened on shaking screens and washed in jigs. Coal was shipped to central washer at Colgate, Ala. Output in 1921 was 31,363 tons. At the time of sampling the daily output was 400 tons, of which 50 per cent was from advance workings. In 1921 life of mine was estimated at 20 years.

SANIE. MARGARET NO. 2 MINE

Analyses 79256 to 79261 (p. 33). Bituminous coal, Cahaba field, Birmingham district, from Margaret No. 2 mine, a slope mine 515 feet above sea level, 1 mile north of Sanie, in sec. 31, T. 15 R. 2 E., on the Central of Georgia Railroad. Coal bed, Harkness; dip, about 6°; thickness, 5 feet 5½ inches to 8 feet 4 inches. Roof, sandstone; floor, shale. Cover at point of sampling, 400 to 500 feet. The bed was measured and sampled at five points by J. J. Forbes, March 15, 1921, as described below:

Sections of coal bed in Margaret No. 2 mine

Section	A		B		C		D		E	
Laboratory No.	79256		79257		79258		79259		79260	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone and shale.										
Coal		9		3				8½		2½
Shale				*8½				*9		*4
Bone						*3½				
Shale		*7½				*8½				
Coal		5		7½		9		8½		9
Shale				*11				*7		*8½
"Sulphur" band		*1½								
Coal				9				8½	1	
Shale						*11				
Coal		6½				8				
Shale				*10½						*7
"Rash" and coal mixed							*1			
Shale		*11				*9				
Coal		10	1	1	1		1			10½
"Rash" and coal	*1		*1			*9				*10½
Coal		11	1							2½
Shale						*4				
Coal					1	6				
Floor, shale.										
Thickness of bed	6	½	7	2½	7	8	5	5½	5	6½
Thickness of sample	3	5½	3	8½	3	11	3	1½	3	½

* Not included in sample.

Section A (sample 79256) was measured at face of 14 north entry; section B (sample 79257) was measured at face of 19 room, 14 south entry; section C (sample 79258) was measured at face of 15 north entry; section D (sample 79259) was measured at face of 15 south entry; and section E (sample 79260) was measured at face of 16 room, off 13 north entry. The ultimate analysis of a composite sample, made by combining face samples 79256 to 79260, is given under laboratory No. 79261.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive. The coal was very dirty. It was screened with shaking screens and washed; sizes produced, slack and nut, which were washed separately and later mixed. Coal was picked on belt. The company expected to abandon this opening within 1 year, but will keep water pumped out and ventilated for possible resumption to recover pillars at some future date. Output in 1920 was 120,000 tons. At the time of sampling the daily output was 325 tons, of which 6 per cent was from advance workings. At time of sampling life of mine was estimated at 1 year.

SHELBY COUNTY

BOOTHTON. BOOTHTON No. 1 MINE

Analyses 78773 to 78776 (p. 34). Bituminous coal, Cahaba field, from No. 1 Boothton mine, a slope mine 450 feet above sea level, at station in sec. 32, T. 21 S., R. 5 W., on the Louisville & Nashville Railroad. Coal bed, Gholson; dip, 15°; strike, S. 27° E.; thickness, 2 feet 9½ inches to 3 feet 6 inches. Roof, sandy shale; floor, shale. Cover at point of sampling, 300 to 450 feet. The bed was measured and sampled at three points by J. J. Forbes, February 21, 1921, as described below:

Section A (sample 78773), representing 3 feet 6 inches of coal, was measured at face of 5 east, slope entry; section B (sample 78774), representing 3 feet 3½ inches of coal, was measured at 5 west, slope entry; and section C (sample 78775), representing 2 feet 9½ inches of coal, was measured at face of 3 wall between 2 and 3 entries. The ultimate analysis of a composite sample, made by combining face samples 78773 to 78775, is given under laboratory No. 78776.

System of mining, room and pillar. Coal was undercut by machine. Permissible explosives were used. Coal was screened on shaking screens and picked on car. At the time of sampling the daily output was 100 tons, from advance workings. In 1921 life of mine was estimated at 20 years.

BOOTHTON. BOOTHTON No. 2 MINE

Analyses 78777 to 78782 (p. 34). Bituminous coal, Cahaba field, from No. 2 Boothton mine, a slope mine 425 feet above sea level, in sec. 32, T. 21 S., R. 5 W. Coal bed, Clark; dip, 15°; strike, S. 27° E.; thickness, 4 feet 2 inches to 4 feet 8 inches. Roof, sandstone and shale. Cover at point of sampling, 250 to 325 feet. The bed was measured and sampled at five points by J. J. Forbes, February 18, 1921, as described below:

Sections of coal bed in Boothton No. 2 mine

Section	A		B		C		D		E	
Laboratory No.	78777		78778		78779		78780		78781	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone and shale.										
Coal		10		10		9		9½		9½
"Slate"		*4		*3½		*3		*3		*4
Coal	3	6	3	½	3	6	3	1½	3	1
Thickness of bed	4	8	4	2	4	6	4	2	4	2½
Thickness of sample	4	4	3	10½	4	3	3	11	3	10½

* Not included in sample.

Section A (sample 78777) was measured at face of 15 room off 3 west entry off slope; section B (sample 78778) was measured near face of main slope; section C (sample 78779) was measured at face of 15 room off 3 east entry off slope; section D (sample 78780) was measured at face of 11 room, 5 east entry, off slope; and section E (sample 78781) was measured at face of 5 west entry off slope. The ultimate analysis of a composite sample made by combining face samples 78777 to 78781 is given under laboratory No. 78782.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder and a permissible explosive. Coal was screened with shaking screens, 4 by 6 inch opening. Coal was picked on car; size produced, lump. At the time of sampling the daily output was 200 tons, of which 50 per cent was from advance workings. In 1921 life of mine was estimated at 20 years.

BOOTHTON. BOOTHTON No. 3 MINE

Analyses 78783 to 78786 (p. 35). Bituminous coal, Cahaba field, from No. 3 Boothton mine, a slope mine 450 feet above sea level in secs. 29 and 32, Rs. 21 S. and 5 W., on the Louisville & Nashville Railroad. Coal bed, Gholson; dip, 13°; strike, S. 27° E.; thickness, 3 feet 5½ inches to 3 feet 10 inches. Roof, sandstone. Cover at point of sampling, about 325 feet. The bed was measured and sampled at three points by J. J. Forbes, February 19, 1921, as described below:

Sections of coal bed in Boothton No. 3 mine

Section	A		B		C	
Laboratory No.	78783		78784		78785	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
"Rash"		* ½				*2½
"Slate"				*2		
Coal	3	1	2	11	3	5
Rock (soft)		*4				
Streaks of coal and clay				*7		
"Rash"						*2½
Thickness of bed	3	5½	3	8	3	10
Thickness of sample	3	1	2	11	3	5

* Not included in sample.

Section A (sample 78783) was measured at face of 5 room off 4 left entry off slope; section B (sample 78784) was measured at face of 17 room off 4 right entry off slope; and section C (sample 78785) was measured at face of main slope. The ultimate analysis of a composite sample made by combining face samples 78783 to 78785 is given under laboratory No. 78786.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder and premissible explosives. It was screened with shaking screens, and picked on car; size produced, lump. At the time of sampling the daily output was 100 tons. In 1921 life of mine was estimated at 15 years.

COALMONT. COALMONT No. 2 MINE

Analyses 80427 to 80431 (p. 35). Bituminous coal, Cahaba field, from No. 2 Coalmont mine, a slope mine on the Louisville & Nashville Railroad and Atlanta, Birmingham & Atlantic Railroad. Coal bed, Clark; dip, 30°; strike, east and west; thickness, 3 feet 4 inches to 4 feet 6 inches. Cover at point of sampling, 400 to 800 feet. The bed was measured and sampled at four points by J. J. Forbes, June 17, 1921, as described below:

Sections of coal bed in Coalmont No. 2 mine

Section	A		B		C		D	
Laboratory No.	80427		80428		80429		80430	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	2	3		9½		4		7
Rock (middleman)		*5						
Rock				*1½				⅜
"Slate"						¼		
Coal		8	1	7		*4		8
Rock				*6				⅜
Rock (middleman)						*4		
Coal				6	1	7	1	10
"Slate" and "rash"			*1					
Rock					1		1	
Thickness of bed	3	4	4	6	3	7¼	4	1¾
Thickness of sample	2	11	2	10½	2	3¼	3	1¾

* Not included in sample.

Section A (sample 80427) was measured at face of 7 right heading; section B (sample 80428) was measured at face of 12 right heading; section C (sample 80429) was measured 75 feet outby face of 12 left heading; and section D (sample 80430) was measured 50 feet outby face of 13 left heading. The ultimate analysis of a composite sample, made by combining face samples 80427 to 80430, is given under laboratory No. 80431.

System of mining, room and pillar. Coal was shot off the solid with permissible explosive and black blasting powder. Coal was screened on revolving and shaking screens, and washed in jigs. Sizes produced, 3 inches up. Coal was picked on belt. Output in 1920 was 59,405 tons. At the time of sampling the daily output was 325 tons, all from advance workings.

COALMONT. COALMONT No. 4 MINE

Analyses 80432 to 80436 (p. 35). Bituminous coal, Cahaba field, from Coalmont No. 4 mine, a slope mine at Coalmont on the Louisville & Nashville Railroad and Atlanta, Birmingham & Atlantic Railroad. Coal bed, Thompson; dip, 18°; strike, east and west; thickness, 3 feet 6¼ inches to 5 feet 2⅜ inches. Roof, sandstone; cover at point of sampling, 225 to 325 feet. The bed was measured and sampled at four points by J. J. Forbes, June 17, 1921, as described below:

Sections of coal bed in Coalmont No. 4 mine

Section	A		B		C		D	
Laboratory No.	80432		80433		80434		80435	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
Coal	1	8	2	7	1	8	2	8
"Slate" band		⅜		*1		*2		*3
Coal	3	6	1	9		5	1	6
Dirt	----		----			*2	----	
Coal	----		----		1		----	
Rock	----		----			*1¼	----	
Coal	----		----			9	----	
Thickness of bed	5	2⅜	4	5	4	3¼	4	5
Thickness of sample	5	2⅜	4	4	3	10	4	2

* Not included in sample.

Section A (sample 80432) was measured at face of 1 left heading; section B (sample 80433) was measured at face of 1 right heading; section C (sample 80434) was measured at face of 2 left heading; section D (sample 80435) was measured at face of 2 right heading. The ultimate analysis of a composite sample, made by combining face samples 80432 to 80435, is given under laboratory No. 80436.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives and black blasting powder. Coal was screened on revolving and shaking screens and washed in jigs. Sizes produced, 3 inches and under. This mine was not operated in 1920. At the time of sampling the daily output was 200 tons, all from advance workings.

HELENA. No. 3 ROEBUCK MINE

Analyses 80488 to 80492 (p. 35). Bituminous coal, Cahaba field, from No. 3 Roebuck mine, a slope mine 508 feet above sea level, 7,000 feet southwest of Helena, in sec. 20, T. 20 S., R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Helena; dip 18°; strike, N. 35° E.; thickness, 3 feet 11½ inches to 4 feet 9½ inches. Roof and floor, sandstone. Cover at point of sampling, 250 to 600 feet. The bed was measured and sampled at four points by J. J. Forbes, June 16, 1921, as described below:

Sections of coal bed in No. 3\Roebuck mine

Section	A		B		C		D	
Laboratory No.	80488		80489		80490		80491	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
"Slate rash"		*6½	------		------		------	
Dirt, clay and coal	------			*11		*11	------	
Coal	1	5	1		2	9		9
Coal	------		------		------			*7
"Rash"		*4	------		------		------	
Dirt and shale	------			*6	------		------	
Clay band	------		------			*2	------	
Coal		8		7		8	1	3
Clay band	------		------		------			*2½
Rock		*2½	------		------		------	
Shale	------			*4	------		------	
Coal		9	1	1	------		2	
Floor, sandstone.								
Thickness of bed	3	11	4	5	4	6	4	9½
Thickness of sample	2	10	2	8	3	5	4	

* Not included in sample.

Section A (sample 80488) was measured at face of 3 left heading; section B (sample 80489) was measured at face of 3 right heading; section C (sample 80490) was measured at face of 2 room off 11 left heading; and section D (sample 80491) was measured at 3 room off 1 left heading. The ultimate analysis of a composite sample made by combining face samples 80488 to 80491 is given under laboratory No. 80492.

System of mining, room and pillar. Coal was shot off the solid with black blasting powder and permissible explosives. It was picked on belt and screened on shaker screens. Maximum size washed, 5 inches; 80 per cent was washed. Output in 1920 was 91,552 tons. At the time of sampling the daily output was 400 tons, all from advance workings. In 1921 life of mine was estimated at 5 years.

HELENA. MOSSBORO MINE

Analyses 85800-85803 (p. 36). Bituminous coal, Cahaba field, Birmingham district, from Mossboro mine, a slope mine 477 feet above sea level, 5 miles southwest of Helena, in sec. 31, T. 20 S., R. 3 W., on the Louisville & Nashville Railroad. Coal bed, Gholson; dip, 25°; strike, N. 45° W.; thickness, 2 feet 8 inches to 3 feet 6 inches. Roof, shale; floor, fire clay. Cover at point of sampling, 120 to 150 feet. The bed was measured and sampled at three points by J. J. Forbes, May 9, 1922, as described below:

Sections of coal bed in Mossboro mine

Section	A		B		C	
Laboratory No.	85800		85801		85802	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, shale.						
"Rash"		*4		*2	*2	5
Coal		2	3	4	2	3
"Mother coal"		¼	------		------	
Coal	2	10	------		------	
Floor, fire clay.						
Thickness of bed	3	4¼	3	6	2	8
Thickness of sample	3	¼	3	4	2	3

* Not included in sample.

Section A (sample 85800) was measured at face of 1 right entry 300 feet from slope; section B (sample 85801) was measured at face of 1 left entry 120 feet from slope; section C (sample 85802) was measured at last crosscut between slope and right air course, 470 feet from slope. The ultimate analysis of a composite sample made by combining face samples 85800 to 85802 is given under laboratory No. 85803.

System of mining, room and pillar. Coal was shot off the solid with black blasting powder and permissible explosive. It was planned to install screens and loading booms as soon as output warrants same. All coal was run of mine.

ROEBUCK. No. 4 ROEBUCK MINE

Analyses 80483 to 80487 (p. 37). Bituminous coal, Cahaba field, Southern Appalachian district, from No. 4 Roebuck mine, a slope mine 656 feet above sea level, 1000 feet southeast of Roebuck, on the Louisville & Nashville Railroad and Atlanta, Birmingham & Atlantic Railroad. Coal bed, Thompson; dip 24°; strike, N. 45° E.; thickness, 2 feet 7½ inches to 5 feet 1 inch. Roof and floor, sandstone. Cover at point of sampling, 250 to 530 feet. The bed was measured and sampled at four points by J. J. Forbes, June 16, 1921, as described below:

Sections of coal bed in No. 4 Roebuck mine

Section	A		B		C		D	
Laboratory No.	80483		80484		80485		80486†	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
"Rashy" coal		2½	—		—		—	
Dirt band	—			*4	—		—	
Coal	2	5	1	10	1	1	1	1
"Rash"	—		—		*1		—	
Soft "slate"	—		—		—			*4
"Rash" and coal	—			1½	—		—	
Rock	—		—		*1		—	
Coal	—		—		—			7
Rock	—			*4½	—		—	
Coal	—		—		1		—	
Dirt (soft)	—		—		—			*7
Coal	—			3	—		—	
Dirt	—		—			*4	—	
Coal	—		—		—			‡10
Coal	—		—		1		1	4
Floor, sandstone.								
Thickness of bed	2	7½	2	11	5	5	4	9
Thickness of sample	2	7½	2	2½	3	1	3	

* Not included in sample.
† Coal.
‡ Small dirt bands.

Section A (sample 80483) was measured at face of 40 room off 6 left heading; section B (sample 80484) was measured at face of 7 room off 7 right heading; section C (sample 80485) was measured at face of 5 right heading; section D (sample 80486) was measured at face of 68 room, 4 left heading. The ultimate analysis of a composite sample made by combining face samples 80483 to 80486 is given under laboratory No. 80487.

System of mining, room and pillar. Coal was shot off the solid with black blasting powder and permissible explosives. Coal was screened on shaker screens and picked on belt; maximum size washed, 3 inches and under. Size produced, fancy lump. Output in 1920 was 60,922 tons. At the time of sampling the daily output was 350 tons, all from advance workings. In 1921 life of mine was estimated at 12 years.

STRAVEN. STRAVEN MINE

Analyses 81933 to 81938 (p. 37). Bituminous coal, Cahaba field, Montevallo district, from Straven mine, a slope mine 520 feet above sea level, one-fourth mile north of Straven, in secs. 7 and 8, T. 21 S., R. 3 W., on the Southern Railway. Coal bed, Montevallo; dip, 12°; strike, N. 52° W.; thickness, 3¼ feet to 4 feet 2 inches. The bed was measured and sampled at five points by J. J. Forbes, September 26, 1921, as described below:

Sections of coal bed in Straven mine

Section	A		B		C		D		E	
Laboratory No.	81933		81934		81935		81936		81937	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Bone, "slate" and coal (mixture)		*5	—	—	—	—		*7		*7
Coal	2	7		4½	—	—		7	2	7
Bone	—	—	—	—		*3¼	—	—	—	—
"Rashy" coal	—	—		2½	—	—		2	—	—
"Slate"	—	—	—	—		*1¼	—	—	—	—
Coal	—	—	2		2	6	1	10	—	—
Rock (middleman)		*9	*1	1		*9		*9		*9
Coal	1		2			9		1		3
Rock (middleman)	—	—	—	—	—	—	—	—		*1
"Slate" band	—	—		¼	—	—	—	—	—	—
Coal	—	—		7	—	—	—	—		7
Thickness of bed	4	9	4	6¼	3	4½	4		4	10
Thickness of sample	3	7	3	5¼	3	3	2	8	3	5

* Not included in sample.

Section A (sample 81933) was measured at face of 12 right heading; section B (sample 81934) was measured at face of 10 right heading; section C (sample 81935) was measured at face of 9 left entry; section D (sample 81936) was measured at face of 17 room off 6 left entry; and section E (sample 81937) was measured at face of 6 right entry. The ultimate analysis of a composite sample made by combining face samples 81933 to 81937 is given under laboratory No. 81938.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. At the time of sampling the daily output was 300 tons, all from advance workings. Shaker screens were used. In 1920 output was 25,933 tons, and life of mine was estimated at 20 years.

STRAVEN. STRAVEN MINE

Analysis 81928 (p. 37). Bituminous coal, Cahaba field, Montevallo district, from Straven mine, a slope mine 580 feet above sea level, one-half mile south of Straven, in secs. 13, 17, and 18, T. 21 S., R. 3 W., on the Southern Railway. Coal bed, Helena; dip 33°; strike, N. 84° E.; thickness, 4 feet 11 inches. Roof and floor, "slate." Cover at point of sampling, 175 feet. The bed was measured and sampled by J. J. Forbes, September 21, 1921, as described below:

Section of coal bed in Straven mine

Section	A	
Laboratory No.	81928	
	Ft.	*in.*
Roof, "slate."		
Coal	2	
"Slate" (middleman)		*3
Coal	1	4
Rock		*4
Coal	1	
Floor, hard "slate."		
Thickness of bed	4	11
Thickness of sample	4	4

* Not included in sample.

Sample 81928 was measured at 2 croscut off main slope, 125 feet from portal. The above mine was opened May 30, 1921. At time of sampling it was down 200 feet, but coal was not being stripped because rail transportation was not available. In 1921 life of mine was estimated at 30 years.

TUSCALOOSA COUNTY

Brookwood. New Slope Mine

Analyses 82266 to 82272 (p. 38). Bituminous coal, Warrior field, from New Slope mine, 530 feet above sea level, one-half mile northeast of Brookwood, in secs. 20 and 29, T. 20 S., R. 7 W., on the Louisville & Nashville Railroad. Coal beds, Brookwood and Milldale; horizontal; thickness, 2 feet 4 inches to 5 feet 3¼ inches. Floor, hard "slate." Cover at point of sampling, 300 to 330 feet. The beds were measured and sampled at six points by J. J. Forbes, October 10, 1921, as described below:

Sections of coal beds in New Slope mine

Section	A		B		C		D		E		F	
Laboratory No.	82266		82267		82268		82269		82270		82271	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
"Rash"		*6		*6½		*7	-----	-----	-----	-----	-----	-----
Coal	1	7½	1	6½	1	7	2	4	2	5	2	5
Bone		*1¾		*2½		*2½	-----	-----	-----	-----	-----	-----
Coal		6½		6		7¼	-----	-----	-----	-----	-----	-----
"Slate"		*1¼		*1¼		*1¾	-----	-----	-----	-----	-----	-----
Coal		¾	1	1¾		1¼	-----	-----	-----	-----	-----	-----
Bone		*1		*1		*1	-----	-----	-----	-----	-----	-----
Coal	1	1¾	1	1¾	1	1¾	-----	-----	-----	-----	-----	-----
Floor, hard "slate."												
Thickness of bed	4	2½	5	3¼	4	5½	2	4	2	5	2	5
Thickness of sample	3	4½	4	4	3	5¼	2	4	2	5	2	5

* Not included in sample.

Section A (sample 82266) was measured at face of 5 left heading; section B (sample 82267) was measured at face of 6 left heading; section C (sample 82268) was measured at face of main heading; section D (sample 82269) was measured at face of 2 left north heading; section E (sample 82270) was measured at face of 10 left heading; section F (sample 82271) was measured at face of main south heading. The ultimate analysis of a composite sample, made by combining face samples 82266 to 82271, is given under laboratory No. 82272.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. It was screened in revolving screens and washed, the maximum size washed being 1½ inches and under. Coal was not picked. At the time of sampling the daily output was 300 tons, of which 15 per cent came from advance workings. In 1921 life of mine was estimated at 15 years.

BROOKWOOD. VALLEY MINE

Analyses 82260 to 82265 (p. 38). Bituminous coal, Warrior field, from Valley mine, a drift mine 500 to 530 feet above sea level, in sec.s 29 and 32, T. 20 S., R. 7 W., on the Louisville & Nashville Railroad. Coal beds, Carter and Milldale; horizontal. Thickness, 2 feet 3½ inches to 2 feet 10½ inches. Roof, sandstone; floor, fairly hard "slate." Cover at point of sampling, 75 to 100 feet. The bed as measured and sampled at five points by J. J. Forbes, October 11, 1921, as described below:

Sections of coal bed in Valley mine

Section	A		B		C		D		E	
Laboratory No.	82260		82261		82262		82263		82264	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	6	1	6	1	6	----		----	
Clay band		* ¾		* ¾		*1½	----		----	
Coal		10		10		9	2	3½		9½
"Slate" band	----		----		----		----			* ¾
Coal	----		----		----		----		2	
Floor, fairly hard "slate."										
Thickness of bed	2	4¾	2	4¾	2	4½	2	3½	2	10¼
Thickness of sample	2	4	2	4	2	3	2	3½	2	10¼

* Not included in sample.

Section A (sample 82260) was measured at face of 1 right heading, No. 9 opening; section B (sample 82261) was measured at face of 3 room off 2 left heading, No. 9 opening; section C (sample 82262) was measured at face of 2 right heading, No. 9 opening; section D (sample 82263) was measured at face of 1 left entry, No. 25 opening; and section E (sample 82264) was measured at face of main heading, No. 24 heading. The ultimate analysis of a composite sample, made by combining face samples 82260 to 82264, is given under laboratory No. 82265.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. It was screened in revolving screens and washed, the maximum size washed being 1½ inches. Coal was not picked. At the time of sampling the daily output was 200 tons, of which 20 per cent came from advance workings. In 1921 life of mine was estimated at 10 years.

COALING. CEDAR COVE NOS. 1 AND 2 MINES

Analyses 86421 to 86425 (p. 38). Bituminous coal, Warrior field, Birmingham district, from Cedar Cove Nos. 1 and 2 mines, slope mines in secs. 25 and 30, T. 21, Rs. 8 and 7, 2½ miles southwest of Coaling, a shipping point on Southern Railway. Coal bed, Milldale; dip, 4 per cent southwest; strike, 54° northwest; thickness, 2 feet 4½ inches to 2 feet 6½ inches. Roof, sandstone; floor, "slate." Cover at point of sampling, 60 to 150 feet. The bed was measured and sampled at four points by J. J. Forbes, July 13, 1922, as described below:

Sections of coal bed in Cedar Cove Nos. 1 and 2 mines

Section	A		B		C		D	
Laboratory No.	86421		86422		86423		86424	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
Coal	2	4½		7¾		9		8
Shale	---	---		* ¾		*2½		* ¾
Coal	---	---		1¾		1½	1	8¼
Shale	---	---		* ½		* ½	---	---
Coal	---	---	1	6¾	1	7	---	---
Floor, "slate."								
Thickness of bed	2	4½	2	5½	2	8½	2	5
Thickness of sample	2	4½	2	4¼	2	5½	2	4¼

* Not included in sample.

Section A (sample 86421) was measured at face of 1 left heading; section B (sample 86422) was measured at face of 12 left heading; section C (sample 86423) was measured at face of 16 right heading; and section D (sample 86424) was measured at face of 15 right heading. The ultimate analysis of a composite sample made by combining face samples and 86422 to 86424 is given under laboratory No. 86425. No. 86421 is the only analysis made of Cedar Cove No. 2 coal.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. It was screened on bar screens and washed; sizes produced, steam and lump. Sizes not washed, 5 inches to 1 foot. At the time of sampling the daily output from Cedar Cove No. 1 was 200 tons, of which 50 per cent was from advance workings; and from Cedar Cove No. 2, 40 tons. All of this coal is run of mine. Cedar Cove No. 1 was to be abandoned, and work concentrated on No. 2. In 1922 the life of both mines was estimated at 6 months.

SEARLES. SLOPE MINE

Analyses 82443 to 82457 (p. 39). Bituminous coal, Warrior field, from Slope mine, 500 feet above sea level, at Searles, in secs. 7 and 8, T. 20 S., R. 7 W., on the Louisville & Nashville Railroad. Coal beds, Brookwood and Milldale; dip, 3½ per cent; thickness, 2 feet 3½ inches to 8 feet 5¾ inches. Roof and floor, "slate." Cover at point of sampling, 150 feet. The beds were measured and sampled at 12 points by J. J. Forbes, October 12, 1921, as described below:

Sections of coal beds in Slope mine

Section	A		B		C		D		E		F	
Laboratory No.	82443		82444		82445		82446		82448		82449	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."												
Coal	1	5½	1	1	2	1	1	2½	1	5½	1	1
Bone		*1¾		*5		*5		*5½		*1¾		*5
Coal		7		9		9½		9½		7		9
Bone		*1¾		*2		*2½		*1¾		*1¾		*2
Coal	1			7		9		7	1			7
Rock (middleman)	*1	9	---	---	---	---	---	---	---	---	---	---
Bone	---	---		*2½		*1¾		*2½	---	---		*2½
Coal	1	10	1		1		1		---	---	1	
Dirt band		⅜	---	---	---	---	---	---	---	---	---	---
Rock (middleman)	---	---	*1	9	*1	3½	*1	6	---	---	---	---
Coal		7	2	3½	2	6	2	7	---	---	---	---
Floor, fairly hard, "slate."												
Thickness of bed	7	6⅜	8	3	9	2¼	8	5¾	3	4	4	2½
Thickness of sample	5	5⅞	5	8½	7	1½	6	2	3	½	3	5

Section	G		H		I		J		K		L	
Laboratory No.	82450		82451		82453		82454		82455		82456	
Roof "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	2	1	1	2½	1	10	2	3½	2	6	2	7
Bone		*5		*5½	---	---	---	---	---	---	---	---
Dirt band	---	---	---	---		⅜	---	---	---	---	---	---
Coal		9½		9½		7	---	---	---	---	---	---
Bone		*2½		*1¾	---	---	---	---	---	---	---	---
Coal		9		7	---	---	---	---	---	---	---	---
Bone		*1¾		*2½	---	---	---	---	---	---	---	---
Coal	1		1		---	---	---	---	---	---	---	---
Floor, fairly hard, "slate."												
Thickness of bed	5	4¾	4	4¾	2	5⅜	2	3½	2	6	2	7
Thickness of sample	4	7½	3	7	2	5⅜	2	3½	2	6	2	7

* Not included in sample.

Section A (sample 82443) was measured at face of 25 room off 2 left south entry; section B (sample 82444) was measured at face of 30 room off 5 right entry; section C (sample 82445) was measured at face of 13 room off 8 right entry; section D (sample 82446) was measured at face of 18 room off 6 left entry; section E (sample 82448) was measured at face of 25 room off 2 left south entry; section F (sample 82449) was measured at face of 30 room off 5 right entry; section G (sample 82450) was measured at face of 13 room off 8 right entry; section H (sample 82451) was measured at face of 13 room off 6 left entry; section I (sample 82453) was measured at face of 25 room off 2 left south entry; section J (sample 82454) was measured at face of 30 room off 5 right entry; section K (sample 82455) was measured at face of 13 room off 8 right entry; and section L (sample 82456) was measured at face of 18 room off 6 left entry. The ultimate analysis of a composite sample made by combining face samples 82443 to 82446 is given under laboratory No. 82447. The ultimate analysis of a composite sample made by combining face samples 82448 to 82451 is given under laboratory No. 82452. The ultimate analysis of a composite sample made by combining face samples 82453 to 82456 is given under laboratory No. 82457.

System of mining, room and pillar. Coal was shot off the solid with permissible explosives. It was screened in shaking and revolving screens and washed, the maximum size washed being 2¾ inches. Sizes produced, 2½ inches and under; 25 per cent of coal is coked. At the time of sampling the daily output was 650 tons, of which 10 per cent came from advance workings. In 1921 life of mine was estimated at 6 years.

SEARLES. AETNA NO. 3 MINE

Analyses 82299 to 82306 and 83216 to 83218 (p. 39). Bituminous coal, Warrior field, from Aetna No. 3 mine, a slope mine 1 mile southwest of Searles, in sec. 6, T. 20 S., R. 6 W., on the Mobile & Ohio Railroad. Coal beds, Brookwood and Milldale; dip, 3½ per cent. Roof and floor, "slate." Cover at point of sampling, 200 feet. The beds were measured and sampled at eight points by J. J. Forbes, October 13, 1921, as described below:

Sections of coal beds in Aetna No. 3 mine

Section Laboratory No.	A 82299	B 82300	C 82301	D 82302	E 82303	F 82304	G 82305	H 82306
Roof, "slate"	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*	*Ft. in.*
Coal	1 2	--------	1 2	11	--------	11	1 1	1 1
Bone	*4½	--------	*4½	*5	--------	*5	*5	*6
Coal	7	--------	7	8½	--------	8½	8	10
Bone	*2	--------	*2	*2½	--------	*2½	*2	*1½
Coal	7½	--------	7½	7	--------	7	7	9
Bone	*1½	--------	*1½	*3	--------	*3	*1¼	*2
Coal	1 1	--------	1 1	1 1	--------	1 1	1 3½	1 4
Rock (middleman	--------	*1 2	*1 2	--------	*1 2	--------	*1 1	*1
Shale	--------	--------	--------	--------	--------	*1 2	--------	--------
Coal	--------	1 5	1 5	--------	1 7¼	1 7¼	1 4	1 9
Bone	--------	--------	--------	--------	--------	--------	--------	1½
Coal	--------	--------	--------	--------	--------	--------	--------	5
Floor, "slate."								
Thickness of bed	4 1½	2 7	6 8½	4 2	2 9¼	6 11¼	6 8¾	8 1
Thickness sample	3 5½	1 5	4 10½	3 3½	1 7¼	4 10¾	4 11½	6 3½

* Not included in sample.

Section A (sample 82299) was measured at face of 5 right heading; section B (sample 82300) was measured at face of 5 right heading; section C (sample 82301) was measured at face of 5 right heading; section D (sample 82302) was measured at face of 5 left heading; section E (sample 82303) was measured at face of 5 left heading; section F (sample 82304) was measured at face of 5 left heading; section G (sample 82305) was measured at face of 4 right heading; and section H (sample 82306) was measured at face of 6 room off 3 left heading. The ultimate analysis of a composite sample made by combining face samples 82299 and 82302 is given under laboratory No. 83216. The ultimate analysis of a composite sample made by combining face samples 82300 and 82303 is given under laboratory No. 83217. The ultimate analysis of a composite sample made by combining face samples 82301 and 82304 to 82306, inclusive, is given under laboratory No. 83218.

System of mining, room and pillar. Coal was shot off the solid with a permissible explosive. It was not screened or washed, but was picked on car. This was a good grade of coking coal. At the time of sampling the daily output was 600 tons, of which 30 per cent came from advance workings. In 1921 life of mine was estimated at 20 years.

YOLANDE. YOLANDE NO. 4 MINE

Analyses 80478 to 80482 (p. 40). Bituminous coal, Warrior field, from Yolande No. 4 mine, a slope mine 33 miles southwest of Birmingham, in sec. 19, T. 20 S., R. 6 W., on the Louisville & Nashville Railroad. Coal bed, Blue Creek; dip, 18°; strike, northwest and southeast; thickness, 5 feet 6 inches to 5 feet 7⅜ inches. Roof and floor, sandstone. Cover at point of sampling, 250 feet. The bed was measured and sampled at four points by J. J. Forbes, June 30, 1921, as described below:

Sections of coal bed in No. 4 mine

Section	A		B		C		D	
Laboratory No.	80478		80479		80480		80481	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Bone		*2½		*2½		*2½		*2½
Coal	1	3	1	2	1	5	1	2
Rock		*4	—	—		*7	—	—
"Mother coal"	—	—		⅜	—	—		½
Coal		5		3		6		3
Clay band		⅜	—	—	—	—	—	—
Rock	—	—		*4	—	—		*4
"Rash" (chiefly coal)	—	—	—	—		4	—	—
Coal	2	6		6	2	3		6
Rock		*6	—	—		*4	—	—
"Rash" (chiefly coal)	—	—		3	—	—		3
Coal	1	3	2	2	1		2	2
Rock	—	—		*6	—	—		*6
Coal	—	—	1	3	—	—	1	2
Floor, sandstone.								
Thickness of bed	6	5⅞	6	7⅞	6	7½	6	7
Thickness of sample	5	5⅜	5	7⅜	5	6	5	6½

* Not included in sample.

Section A (sample 80478) was measured at face of 3 right heading; section B (sample 80479) was measured at face of 6 right heading; section C (sample 80480) was measured at face of slope; and section D (sample 80481) was measured at face of 7 right heading. The ultimate analysis of a composite sample made by combining face samples 80478 to 80481 is given under laboratory No. 80482.

System of mining, room and pillar. Coal was hand cut; permissible explosives were used. It was screened on shaker screens and washed; none was run of mine. Sizes produced, 1 inch down. Coal was picked on chute; 60 per cent of coal was coked, three-eighths inch down, in 150 beehive ovens. Output in 1920 was 40,000 tons. At the time of sampling the daily output was 400 tons, all from advance workings. In 1921 life of mine was estimated at 12 years.

WALKER COUNTY

AMERICA JUNCTION. ALDRIDGE MINE

Analyses 79363 to 79367 (p. 40). Bituminous coal, Warrior field, from Aldridge mine, a drift mine about 275 feet above sea level, in sec. 26, T. 15, R. 7 W., on the Southern Railway. Coal bed, America; flat; thickness, 2½ to 3½ feet. Roof, sandstone; floor, sandstone. Cover at point of sampling, 70 to 125 feet. The bed was measured and sampled at four points by J. J. Forbes, March 24, 1921, as described below:

Sections of coal bed in Aldridge mine

Section	A		B		C		D	
Laboratory No.	79363		79364		79365		79366	
	Ft.	in.	Ft.	in.	Ft.	in.	Ft.	in.
Roof, sandstone.								
Coal	1	3½		4	1	10	1	3
"Slate" (middleman)		*3		----------		----------		----------
Rock		----------		*4		----------		----------
Cannel coal		----------		----------		4		----------
Rock and bone (middleman)		----------		----------		----------		*3½
Coal		4		3½		7		10
Bone		*4		----------		----------		----------
Coal (cannel)		----------		4½		----------		----------
Rock		----------		----------		*1		----------
"Slate"		----------		----------		----------		* ¼
Coal		4½		3		9½		4
"Slate"		* ¼		----------		----------		----------
"Slate" dirt		----------		* ¼		----------		----------
Rock		----------		----------		----------		*2
Coal		3½		4½		----------		10
Rock		*2½		*3½		----------		----------
Coal	1			11		----------		----------
Floor, sandstone.								
Thickness of bed	4	1¼	3	2¼	3	7½	3	8¾
Thickness of sample	3	3½	2	6½	3	6½	3	3

* Not included in sample.

Section A (sample 79363) was measured at face of 9 left entry off main north entry, No. 5 opening; section B (sample 79364) was measured near face of 12 left entry off main north entry, No. 5 opening; section C (sample 79365) was measured at face of 6 right entry off main north entry, No. 2 opening; and section D (sample 79366) was measured 75 feet outby face, new 5 right entry, No. 2 opening. The ultimate analysis of a composite sample made by combining face samples 79363 to 79366 is given under laboratory No. 79367.

System of mining, room and pillar. Coal was both shot off the solid and undercut by machine. FF black blasting powder was used. Coal was screened on shaking screens; sizes produced, 3 inches and under. Coal was picked on belt. Output in 1920 was 170,000 tons. At the time of sampling the daily output was 700 tons, 60 per cent of which was from advance workings. In 1921 life of mine was estimated at 15 years.

BANKHEAD. BANKHEAD MINE

Analyses 79350 to 79354 (p. 40). Bituminous coal, Warrior field, from Bankhead mine, a shaft mine about 600 feet above sea level, in sec. 32, T. 14 S., R. 7 W., on the Northern Railroad. Coal bed, Mary Lee; almost flat; thickness, 5 feet to 7 feet 4 inches. Roof and floor, sandstone. Cover at point of sampling, 200 feet. The bed was measured and sampled at four points by J. J. Forbes, March 23, 1921, as described below:

Sections of coal bed in Bankhead mine

Section	A		B		C		D	
Laboratory No.	79350		79351		79352		79353	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, sandstone.								
"Mother coal"		*2	———		———		———	
Coal	2	8	2	10	3	2	2	9
Rock (middleman)		*6		*6		*6		*8
Coal	4	8	4	3	4	1	2	3
Bone		*6		*4		*6	———	
Floor, sandstone.								
Thickness of bed	8	6	7	11	8	3	5	8
Thickness of sample	7	4	7	1	7	3	5	

* Not included in sample.

Section A (sample 79350) was measured 500 feet outby face of main south entry; section B (sample 79351) was measured at face of "A" heading off main south entry; section C (sample 79352) was measured 100 feet outby face of main north entry; and section D (sample 79353) was measured at face of west entry off main north entry. The ultimate analysis of a composite sample made by combining face samples 79350 to 79353 is given under laboratory No. 79354.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder. It was screened on shaking screens and picked on belt. Output in 1920 was 178,230 tons. At the time of sampling the daily output was 700 tons, of which 25 per cent came from advance workings. In 1921 life of mine was estimated at 20 years.

BENOIT. BENOIT MINE

Analyses 81951 to 81955 (p. 41). Bituminous coal, Warrior field, from Benoit mine, a drift mine 515 feet above sea level, in Benoit, in sec. 11, T. 15 S., R. 6 W., on the Frisco Railroad. Coal bed, Mary Lee, upper bench; flat; thickness, 2 feet 6¼ inches to 5 feet 1 inch. Roof and floor, "slate." Cover at point of sampling, 150 to 200 feet. The bed was measured and sampled at four points by J. J. Forbes, September 30, 1921, as described below:

Sections of coal bed in Benoit mine

Section	A		B		C		D	
Laboratory No.	81951		81952		81953		81954	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."								
Coal	1	7	1	7	2	4	2	9
"Slate"		⅜		⅜	———		———	
Bone (carpet rock)	———		———			½	———	
Rock (middleman)	———		———		———			*8
Coal		9		9		2		9
Bone (carpet rock)		½		½	———		———	
Rock	———		———		———			*1½
Coal		3		3	———		1	
Rock	———		———		———			*2
Coal	———		———		———			7
Floor, "slate."								
Thickness of bed	2	7⅞	2	7⅞	2	6½	6	½
Thickness of sample	2	7⅞	2	7⅞	2	6½	5	1

* Not included in sample.

Section A (sample 81951) was measured at face of 1 left off 3 right entry; section B (sample 81952) was measured at face of main heading; section C (sample 81953) was measured at face of No. 2 main entry; and section D (sample 81954) was measured at face of new slope heading. The ultimate analysis of a composite sample made by combining face samples 81951 to 81954 is given under laboratory No. 81955.

System of mining, room and pillar. Coal was undercut by machine, and shot down with FF black blasting powder. It was screened on shaking screens, and washed. Sizes produced, 3 inches and under. Coal was picked on belt. At the time of sampling the daily output was 350 tons, 15 per cent from advance workings. In 1921 life of mine was estimated at 20 years.

CALUMET. CALUMET MINE

Analyses 79344 to 79349 (p. 41). Bituminous coal, Warrior field, from Calumet mine, a slope mine 600 feet above sea level, 3½ miles south of Jasper, in secs. 29 and 32, T. 14 S., R. 7 W. Coal bed, Mary Lee; dip, 5 per cent; strike, northwest and southeast; thickness 4 feet 10½ inches to 8 feet 4½ inches. Roof and floor, sandstone. Cover at point of sampling, 200 feet. The bed was measured and sampled at five points by J. J. Forbes, March 22, 1921, as described below:

Sections of coal bed in Calumet mine

Section	A		B		C		D		E	
Laboratory No.	79344		79345		79346		79347		79348	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	10	2	9	2	10½	------		------	
"Mother coal"	------		------		------			*2	------	
Bone		*1	------		------		------			*1½
Coal	1	4	------		------		2	8	2	6
Rock (middleman)		*6		*7	------			*7		*5½
Coal	5	2½	------			2	1		3	6
Dirt	------		*2	4	------			*1	------	
Bone		*2	------		------		------		------	
Coal	------		------		------		2	5	------	
Floor, sandstone.										
Thickness of bed	9	1½	5	8	5	5	6	11	6	7
Thickness of sample	8	4½	2	9	4	10½	6	1	6	

* Not included in sample.

Section A (sample 79344) was measured at face of 2 west entry off main south entry; section B (sample 79345) was measured at face of main south entry; section C (sample 79346) was measured at face of 3 east entry off main south entry; section D (sample 79347) was measured at face of 4 main entry off main north entry; and section E (sample 79348) was measured at face of main north entry. The ultimate analysis of a composite sample made by combining face samples 79344 to 79348 is given under laboratory No. 79349.

System of mining, room and pillar. Coal was shot off the solid with FF black blasting powder. It was screened on stationary bars and picked on car. At the time of sampling the daily output was 400 tons, 12 per cent from advance workings. In 1921 life of mine was estimated at 5 years.

CARBON HILL. GALLOWAY NO. 11 MINE

Analyses 79608 to 79614 (p. 41). Bituminous coal, Warrior field, from Galloway No. 11 mine, a slope mine 451 feet above sea level, 1 mile southwest of Carbon Hill in secs. 25 and 30, T. 13 S., R. 10 W., on the Frisco Railroad. Coal bed, Jagger; dip, 7°; thickness, 2 feet 5 inches to 3 feet 1 inch. Roof, sandstone; floor, soft fire clay. Cover at point of sampling, 50 to 375 feet. The bed was measured and sampled at six points by J. J. Forbes, April 19, 1921, as described below:

Sections of coal bed in Galloway No. II mine

Section	A		B		C		D		E		F	
Laboratory No.	79608		79609		79610		79611		79612		79614	
Roof, sandstone.	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		7		8		7		7		8		*7
Parting (rock)		*7		*7		*7		*7		*7		*7
Coal	2	4	2	4	2		1	10	2	5		*5
Cannel coal	—		—		—		—		—			1½
Coal	—		—		—		—		—			*1
Cannel coal	—		—		—		—		—			1
Coal	—		—		—		—		—		1	8½
Floor, sandy fire clay.												
Thickness of bed	3	6	3	7	3	2	3		3	8	3	7
Thickness of sample	2	11	3		2	7	2	5	3	1	1	11

* Not included in sample.

Section A (sample 79608) was measured at face of 7 right slope; section B (sample 79609) was measured at face of 3 right entry off 7 right slope; section C (sample 79610) was measured at face of 4 right entry off main west entry; section D (sample 79611) was measured at face of 2 right entry off main west entry; section E (sample 79612) was measured at face of southwest slope; and section F (sample 79614) was measured at face of 7 right slope. The ultimate analysis of a composite sample made by combining face samples 79608 to 79612 is given under laboratory No. 79613.

System of mining, room and pillar. Coal was undercut by machine. It was screened on shaker screens and was washed in jigs; 42 per cent of coal was washed. Sizes produced, 58 per cent lump. Coal was picked on belt. Output in 1920 was 179,000 tons. At the time of sampling the daily output was 1,000 tons, 92 per cent being from advance workings. In 1921 the life of mine was estimated to be 16 years.

COAL VALLEY. COAL VALLEY MINE

Analyses 80265 to 80269 (p. 42). Bituminous coal, Warrior field, from Coal Valley mine, a drift mine 430 feet above sea level on the Southern Railway. Coal bed, Corona; horizontal; strike, southwest; thickness, 2 feet 5 inches to 2 feet 8 inches. Cover at point of sampling, about 30 feet. The bed was measured and sampled at four points by J. J. Forbes, June 14, 1921, as described below:

Sections of coal bed in Coal Valley mine

Section	A		B		C		D	
Laboratory No.	80265		80266		80267		80268	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	2	1	3	1	3	1	1
Bone		*2		*2		*2		*2
Coal	1	3	1	5	1	5	1	4
Thickness of bed	2	7	2	10	2	10	2	7
Thickness of sample	2	5	2	8	2	8	2	5

* Not included in sample.

Section A (sample 80265) was measured at face of 3 room off 15 right entry; section B (sample 80266) was measured at face of 3 room off 10 right entry; section C (sample 80267) was measured at 3 room off 10 right entry, No. 11 opening; and section D (sample 80268) was measured at face of 11 room off 15 right entry. The ultimate analysis of a composite sample made by combining face samples 80265 to 80268 is given under laboratory No. 80269.

System of mining, room and pillar. Coal was undercut by machine. It was screened on shaking screens and washed in jigs; 60 per cent is washed. Coal was picked on belt; maximum size, 3 inches; sizes produced, 3 inches and under. Output in 1920 was 211,378 tons. At the time of sampling the daily output was 1,000 tons, all from advance workings. In 1921 life of mine was estimated at 25 years.

CORDOVA. BARNEY MINE

Analyses 86970 and 87202 to 87205 (p. 42). Bituminous coal, Warrior field, Birmingham district, from Barney mine, a slope mine 282.87 feet above sea level, 4 miles southeast of Cordova, in T. 15 S., R. 6 W., on the Southern Railway. Coal bed, Mary Lee; dip, 6 per cent; butt course, N. 55° 30′ E.; thickness, 2 feet 11½ inches to 3 feet 1¾ inches. Roof and floor, "slate." The bed was measured and sampled at four points by J. J. Forbes, September 21, 1922, as described below:

Sections of coal bed in Barney mine

Section Laboratory No.	A 86970		B 87202		C 87203		D 87204	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."								
Coal	2	6	2	6½	2	5½	2	9
Bone		* ¾		*1		* ½		* ¾
Coal		3½		3		3		2
Rock		*1		*1		*1		*1
Coal		1		1		1		1
Floor, "slate."								
Thickness of bed	3	¼	3	½	2	11	3	1¾
Thickness of sample	2	10½	2	10½	2	9½	3	

* Not included in sample.

Section A (sample 86970) was measured at face of main slope, 8,500 feet from mouth of mine; section B (sample 87202) was measured at face of 3 left entry about 1,000 feet from mouth of mine; section C (sample 87203) was measured at face of 5 left entry off 3 left entry 500 feet from mouth of mine; and section D (sample 87204) was measured at face of 8 right entry, 1,400 feet from mouth of mine. The ultimate analysis of a composite sample made by combining face samples 86970 and 87202 to 87204 is given under laboratory No. 87205.

System of mining, room and pillar. Coal is both shot off the solid and undercut by machine with FF black blasting powder, and permissible explosives were used. All coal was run of mine. Output in 1921 was 43,718 tons. At the time of sampling the daily output was 300 tons, 15 per cent being from advance workings. In 1922 life of mine was estimated at 15 years.

CORDOVA. MT. CARMEL NO. 1 MINE

Analyses 87111 to 87114 (p. 42). Bituminous coal, Warrior field, Birmingham district, from Mt. Carmel No. 1 mine, a drift mine 1 mile northeast of Cordova, in sec. 4, T. 15 S., R. 6 W., on the Frisco Railroad. Coal bed, Mary Lee;

thickness, 2 feet 6 inches to 2 feet 7 inches. Roof, "slate"; floor, fire clay. Cover at point of sampling, 50 to 100 feet. The bed was measured and sampled at three points by J. J. Forbes, September 22, 1922, as described below:

Sections of coal bed in Mt. Carmel No. 1 mine

Section	A		B		C	
Laboratory No.	87111		87112		87113	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."						
Coal	1	5	2	4	2	5½
"Mother coal"		*1	—		—	
Bone	—			*1		* ½
Coal		6½		1		1
"Mother coal"		*1	—		—	
Coal		4½	—		—	
Bone		*1	—		—	
Coal		1½	—		—	
Floor, fire clay.						
Thickness of bed	2	8½	2	6	2	7
Thickness of sample	2	5½	2	5	2	6½

* Not included in sample.

Section A (sample 87111) was measured at face of 3 right entry; section B (sample 87112) was measured at face of 4 right entry; and section C (sample 87113) was measured at face of 1 right entry. The ultimate analysis of a composite sample made by combining face samples 87111 to 87113 is given under laboratory No. 87114.

System of mining, room and pillar. Coal was undercut by machine. Bar screens were used; size produced, 5-inch lump. Output in 1921 was 35,000 tons. At the time of sampling the daily output was 250 tons.

CORDOVA. MOUNT CARMEL NO. 2 MINE

Analyses 87115 to 87118 (p. 42). Bituminous coal, Warrior field, Birmingham district, from Mount Carmel No. 2 mine, a drift mine 1¼ miles northeast of Cordova, in sec. 33, T. 15 S., R. 6 W., on the Frisco Railroad. Coal bed, Mary Lee; thickness, 2 feet 6½ inches to 2 feet 7 inches. Roof, slate; floor, fire clay. The bed was measured and sampled at three points by J. J. Forbes, September 22, 1922, as described below:

Sections of coal bed in Mount Carmel No. 2 mine

Section	A		B		C	
Laboratory No.	87115		87116		87117	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."						
Coal	2	5	2	5	2	5
Bone		*1		*1		*1
Coal		½		1		½
Floor, fire clay.						
Thickness of bed	2	6½	2	7	2	6½
Thickness of sample	2	5½	2	6	2	5½

* Not included in sample.

Section A (sample 87115) was measured at face of main entry; section B (sample 87116) was measured at face of 4 right entry; and section C (sample

87117) was measured at face of 5 left entry. The ultimate analysis of a composite sample made by combining face samples 87115 to 87117 is given under laboratory No. 87118.

System of mining, room and pillar. Coal was undercut by machine. Coal was screened and 70 per cent was run of mine. Output in 1921 was 30,000 tons. At the time of sampling the daily output was 400 tons. In 1922 life of mine was estimated at 30 years.

DORA. PRATT FUEL MINE

Analyses 81939 to 81944 (p. 43). Bituminous coal, Warrior field, from Pratt Fuel mine, a drift mine 520 feet above sea level, 1½ miles northwest of Dora, in sec. 7, T. 15, R. 5 W., on the Frisco Railroad. Coal bed, Mary Lee (upper bench); flat; strike, N. 60° E.; (butt course); thickness, 2 feet 8 inches to 2 feet 9¾ inches. Roof and floor, "slate." Cover at point of sampling, 100 to 150 feet. The bed was measured and sampled at five points by J. J. Forbes September 28, 1921, as described below:

Sections of coal bed in Pratt Fuel mine

Section	A		B		C		D		E	
Laboratory No.	81939		81940		81941		81942		81943	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."										
Coal	2	4½	2	5	2	5	2	4½	2	4½
Bone		2¼		¼		¼		½		½
Coal		3		4		4		3		3
Floor, hard "slate."										
Thickness of bed	2	9¾	2	9¼	2	9¼	2	8	2	8
Thickness of sample	2	9¾	2	9¼	2	9¼	2	8	2	8

Section A (sample 81939) was measured at face of 2 left butt entry; section B (sample 81940) was measured at face of 3 right entry; section C (sample 81941) was measured at face of 5 left entry; section D (sample 81942) was measured at face of No. 1 butt entry; and section E (sample 81942) was measured at face of No. 2 butt entry. The ultimate analysis of a composite sample made by combining face samples 81939 to 81943 is given under laboratory No. 81944.

System of mining, room and pillar. Coal was undercut by machine and shot off the solid with a permissible explosive and black blasting powder. Coal was picked on car and in the mine. At the time of sampling the daily output was 1,000 tons, 15 per cent from advance workings. In 1921 life of mine was estimated at 10 years.

DORA. KERSHAW MINE

Analyses 79673 to 79678 (p. 43). Bituminous coal, Warrior field, from Kershaw mine, a drift mine 400 feet above sea level in secs. 6 and 7, T. 16 S., R. 5 W. Coal bed, Black Creek; flat (wavy); thickness, 2 feet 5 inches to 2 feet 9 inches. Roof and floor, "slate." Cover at point of sampling, about 50 feet. The bed was measured and sampled at five points by J. J. Forbes, April 28, 1921, as described below:

Sections of coal bed in Kershaw mine

Section	A		B		C		D		E	
Laboratory No.	79673		79674		79675		79676		79677	
Roof, "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		3		3	1	9	1	6		11
"Slate"		* ¾		* ¾		* ½		* ⅜		* ⅜
Coal	1	3	1	3	1	0	1	3	1	6
"Slate"		* ½		* ½	—	—	—	—	—	—
Coal	1	2½	1	2½	—	—	—	—	—	—
Floor, "slate."										
Thickness of bed	2	9¾	2	9¾	2	9½	2	9⅜	2	5⅜
Thickness of sample	2	8½	2	8½	2	9	2	9	2	5

* Not included in sample.

Section A (sample 79673) was measured at face of 2 entry; section B (sample 79674) was measured at face of 2 butt entry; section C (sample 79675) was measured at face of 4 right entry, 500 feet from portal of mine; section D (sample 79676) was measured at face of 5 face entry, 700 feet from portal of mine; and section E (sample 79677) was measured at 1 butt off 5 face entry, 700 feet from portal of mine. The ultimate analysis of a composite sample made by combining face samples 79673 to 79677, is given under laboratory No. 79678.

System of mining, room and pillar. Coal was undercut by machine and shot down with a permissible explosive. Coal was screened on shaker screens and picked on belt; 7½ per cent of coal is run of mine. Output in 1920 was 75,000 tons. At the time of sampling the daily output was 500 tons, of which 70 per cent came from advance workings. In 1921 life of mine was estimated at 8 years.

DORA. SUMMIT NO. 1 MINE

Analyses 83005 to 83008 (p. 43). Bituminous coal, Warrior field, from Summit No. 1 mine, a slope mine 500 feet above sea level, in sec. 10, T. 15 S., R. 5 W., on the Frisco Railroad. Coal bed, Black Creek; dip, 6 per cent; strike, southwest. Roof and floor, soft shale. Cover at point of sampling, about 175 feet. The bed was measured and sampled at three points by J. J. Forbes, November 9, 1921, as described below:

Section A (sample 83005), representing 2 feet 2 inches of coal, was measured at face of 9 right entry; section B (sample 83006), representing 2 feet 3 inches of coal, was measured at face of 3 room off 9 left entry; and section C (sample 83007), representing 2 feet 3 inches of coal, was measured at right rib of 3 room off 10 right entry. The ultimate analysis of a composite sample made by combining face samples 83005 to 83007 is given under laboratory No. 83008.

System of mining, room and pillar. Coal was undercut by machine and shot down with a permissible explosive. It was screened on revolving screens and washed. Sizes produced, 2½ inches and under. Coal was picked on belt. Output in 1920 was 2,500 tons. At the time of sampling the daily output was 150 tons, of which 20 per cent came from advance workings. In 1921 life of mine was estimated at 15 years.

DORA. SUMMIT NO. 2 MINE

Analyses 83009 to 83012 (p. 43). Bituminous coal, Warrior field, from No. 2 Summit mine, a drift mine 500 feet above sea level, 25 miles west of Birmingham, in sec. B, T. 15 S., R. 5 W. Coal bed, Black Creek; nearly flat; thickness of bed, coal, and sample, 24 inches. Roof and floor, shale. Cover at point of sampling, 25 to 75 feet. The bed was measured and sampled at three points by J. J. Forbes, November 10, 1921, as described below:

Section A (sample 83009) was measured at face of main entry; section B (sample 83010) was measured 200 feet outby face of main entry; and section C (sample 83011) was measured 200 feet outby face of main entry; and section C (sample 83011) was measured at face of main entry. The ultimate analysis of a composite sample made by combining face samples 83009 to 83011 is given under laboratory No. 83012.

System of mining, room and pillar. Coal was undercut by machine and shot down with permissible explosives. It was screened on revolving screens and washed; sizes produced, 2½ inches and under. Coal was picked on belt. Output in 1920 was 2,000 tons. At the time of sampling the daily output was 100 tons, of which 20 per cent came from advance workings. In 1921 life of mine was estimated at 20 years.

Empire. Empire No. 2 Mine

Analyses 79663 to 79668 (p. 44). Bituminous coal, Warrior field, from Empire No. 2 mine, a drift mine 340 feet above sea level, three-fourths mile southwest of Empire, in secs. 23 and 24, T. 14 S., R. 5 W., on the Frisco Railroad. Coal bed, Black Creek; flat; thickness, 20 to 26 inches. Roof, "slate"; floor, hard fire clay. Cover at point of sampling, 200 feet. The bed was measured and sampled at five points by J. J. Forbes, April 27, 1921, as described below:

Section A (sample 79663), representing 2 feet 2 inches of coal, was measured at face of 11 right entry, No. 3 opening; section B (sample 79664), representing 2 feet of coal, was measured at face of 10 left entry, No. 3 opening; section C (sample 79665), representing 2 feet 2 inches of coal, was measured at north face off 4 right entry, No. 2 opening; section D (sample 79666), representing 2 feet of coal, was measured at face of 4 right entry, No. 2 opening; and section E (sample 79667), representing 1 foot 8 inches of coal, was measured 200 feet outby the face of 8 right entry, No. 2 opening. The ultimate analysis of a composite sample made by combining face samples 79663 to 79667 is given under laboratory No. 79668.

System of mining, room and pillar. Coal was undercut by machine, screened on shaker screens, and washed. Sizes produced, 2 inches and under. Coal was picked on car. Output in 1920 was 71,290 tons. At the time of sampling the daily output was 375 tons, of which 80 per cent came from advance workings. In 1921 life of mine was estimated at 25 years.

Empire. Empire No. 1 Mine

Analyses 79657 to 79662 (p. 44). Bituminous coal, Warrior field, from No. 1 Empire mine, a drift mine 371 feet above sea level, 1¾ miles north of Empire, in sec. 12, T. 14 S., R. 4 W., on the Frisco Railroad. Coal bed, Black Creek; flat; thickness, 2 feet 2½ inches to 2 feet 7 inches. Roof, "slate"; floor, fire clay. Cover at point of sampling, 150 to 250 feet. The bed was measured and sampled at five points by J. J. Forbes, April 27, 1921, as described below:

Sections of coal bed in Empire No. 1 mine

Section	A		B		C		D		E	
Laboratory No.	79657		79658		79659		79660		79661	
Roof, "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal	1	5½					2	7	2	7
Fire clay				*3		*1				
Coal		5	2	6	2	7				
Rock (parting)		*3½								
Coal		4								
Floor, fire clay.										
Thickness of bed	2	6⅜	2	9	2	8	2	7	2	7
Thickness of sample	2	2½	2	6	2	7	2	7	2	7

* Not included in sample.

Section A (sample 79657) was measured at face of entry off 7 right entry, No. 10 opening; section B (sample 79658) was measured at face off No. 11 heading, No. 11 opening; section C (sample 79659) was measured at face of No. 3 opening; section D (sample 79669) was measured at face of No. 6 opening; and section E (sample 79661) was measured at face of 31 left entry. The ultimate analysis of a composite sample made by combining face samples 79657 to 79661 is given under laboratory No. 79662.

System of mining, room and pillar. Coal was undercut by machine; permissible explosives were used. Coal was screened on shaker screens and washed. Sizes produced (washed), seven-eighths inch and under. Coal was picked on screen. Sizes produced (not washed), 1½-inch and 4-inch lump. Output in 1920 was 157,967 tons. At the time of sampling the daily output was 750 tons, of which 80 per cent came from advance workings. In 1921 life of mine was estimated at 25 years.

Gorgas. Winona Mine

Analyses 80349 to 80352 and 80359 to 80362 (p. 45). Bituminous coal, Warrior field, from Winona mine, a drift mine 370 and 420 feet above sea level at Gorgas, in sec. 18, T. 15 S., R. 6 W., on the Southern Railway. Coal beds, Pratt and Nickel Plate; dip, 3 per cent; strike, east and west; thickness, 3 feet to 3 feet 7 inches. Roof and floor, "slate." Cover at points of sampling, 100 to 150 feet. The beds were measured and sampled at six points by J. J. Forbes, June 21, 1921, as described below:

Sections of coal beds in Winona mine

Section	A		B		C		D		E		F	
Laboratory No.	80349		80350		80351		80359		80360		80361	
Roof, "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		9	1	4	1	4½		10		10		9
Bone		*2		*2		*1						*2
Rock								*2		*2		
Coal		7	1	3	1	6		5		5		7
Rock		*1½		*1		*2						*1½
Bone								*1½		*1½		
Coal	2	3		5		4	2	3	2	3	2	3
Floor, "slate."												
Thickness of bed	3	10½	3	3	3	5½	3	9½	3	9½	3	10½
Thickness of sample	3	7	3		3	2½	3	6	3	6	3	7

* Not included in sample.

Section A (sample 80349) was measured at face of 4 right entry off No. 2 opening; section B (sample 80350) was measured at face of 2 left entry off No. 3 opening; section C (sample 80351) was measured at face of No. 4 opening; section D (sample 80359) was measured at face of No. 12 opening; section E (sample 80360) was measured at new face of No. 8 opening; and section F (sample 80361) was measured at face of No. 13 opening. The ultimate analysis of a composite sample made by combining face samples 80349 to 80351 is given under laboratory No. 80352. The ultimate analysis of a composite sample made by combining face samples 80359 to 80361 is given under laboratory No. 80362.

System of mining, room and pillar. Coal was undercut by machine and shot down with permissible explosives. Coal was not screened or washed, but picked in mine. Output in 1920 was 115,000 tons. At the time of sampling the daily output was 600 tons, of which 85 per cent came from advance workings. In 1921 life of mine was estimated at 25 years. A new washer was to be placed in operation in September, 1921.

PARRISH. PARRISH MINE

Analyses 77605 to 77609 (p. 45). Bituminous coal, Warrior River field, from Parrish mine, a drift mine at Parrish, on the Southern Railway. Coal bed, Mary Lee; thickness, 2 feet 10¾ inches to 7 feet 4¾ inches. Roof, hard "slate"; floor, sandstone. The bed which had 300 to 400 feet of cover, was sampled at four points, by J. J. Forbes, November 28, 1920, as described below:

Sections of coal bed in Parrish mine

Section	A		B		C		D	
Laboratory No.	77605		77606		77607		77608	
Roof, hard "slate"	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		7		3	1	9		6½
Soft band		* ¾						
Dirt band				¼				
Bone						¼		
"Slate"								* ½
Coal	2			4		9	1	10½
Rock		*3				*1		
Dirt band				¼				
Bone								*1
Coal			2			5		4
Bone				*1				
Rock						*4½		*5
Coal				4½	4			4
Rock				*4				
Coal			1					
Floor, sandstone.								
Thickness of bed	2	10¾	4	5	7	4¾	3	7½
Thickness of sample	2	7	4		6	11¼	3	1

* Not included in sample.

Section A was measured at face of main north entry; section B was measured at face of A left entry; section C was measured at face of 3 right entry; and section D was measured at face of main south entry. The ultimate analysis of a composite sample made by combining face samples 77605 to 77608 is given under laboratory No. 77609.

The daily capacity of the mine when sampled was 1,200 tons.

PAYNES BEND. PAYNES BEND NO. 1 MINE

Analyses 87206 to 87211 (p. 45). Bituminous coal, Warrior field, from Paynes Bend No. 1 mine, a drift mine 420 feet above sea level, 600 feet northeast of Paynes Bend, in sec. 19, T. 15 S., R. 6 W. Output is shipped by barge on Warrior River. Coal bed, Pratt; dip, 2° southwest; thickness, 2 feet 3¾ inches to 2 feet 10¼ inches. Roof and floor, "slate." Cover at point of sampling, 100 to 250 feet. The bed was measured and sampled at five points by J. J. Forbes, October 9, 1922, as described below:

Sections of coal bed in Paynes Bend No. 1 mine

Section	A		B		C		D		E	
Laboratory No.	87206		87207		87208		87209		87210	
Roof, "slate."	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Coal		8		5		5¼		8½		7¾
Bone		*2		*2		*1¾		*1¾		*2
Coal		4½		4		4		4		4
Rock		* ¾		* ⅜		* ¾		* ¾		* ¾
Coal	1	7	1	5	1	4	1	5¾	1	6½
Floor, hard "slate."										
Thickness of bed	2	10¼	2	4⅜	2	3¾	2	8¾	2	9
Thickness of sample	2	7½	2	2	2	1¼	2	6¼	2	6¼

* Not included in sample.

Section A (sample 87206) was measured at face of main entry; section B (sample 87207) measurement not given; section C (sample 87208) was measured at face of 2 right entry off new haulage, left rib, 15 feet from face; section D (sample 87209) was measured at face of 4 left entry; and section E (sample 87210) was measured at face of 4 right entry off new haulage, 1 cross entry, 5 left entry. The ultimate analysis of a composite sample made by combining face samples 87206 to 87210 is given under laboratory No. 87211.

System of mining, room and pillar. Coal was undercut by machine; a permissible explosive was used. Coal was picked in mine and output was run of mine. At the time of sampling the daily output was 400 tons, all from advance workings. Output in 1921 was 60,000 tons. In 1922 life of mine was estimated at 8 years.

TOWNLEY. GALLOWAY NO. 15 MINE

Analyses 80119 to 80123 (p. 45). Bituminous coal, Warrior field, from Galloway No. 15 mine, a slope mine 450 feet above sea level, 1 mile north of Townley, in secs. 6 and 7, T. 14 S., R. 8 W., on the Frisco Railroad. Coal bed, Jagger; dip, 1°; strike, N. 61° W.; thickness, 1 foot 10½ inches to 3 feet 2½ inches. Cover at point of sampling, 70 to 90 feet. Roof and floor, "slate." The bed was measured and sampled at four points by J. J. Forbes, April 21, 1921, as follows:

Sections of coal bed in Galloway No. 15 mine

Section	A		B		C		D	
Laboratory No.	80119		80120		80121		80122	
	Ft.	*in.*	*Ft.*	*in.*	*Ft.*	*in.*	*Ft.*	*in.*
Roof, "slate."								
Bone coal		2	----	----		1	----	----
Coal	----	----		11	----	----	----	----
Bone	----	----	----	----	----	----		1
Coal		8	----	----	----	----	----	----
Rock (middleman)	----	----		*8	----	----	----	----
Coal	----	----	----	----		9		9½
Rock (middleman)		*8	----	----		*9½		*10
Coal	1	10	2	2	----	----	1	
Bone coal	----	----	----	----		2½	----	----
Bone		*10	----	----	----	----	----	----
Coal	----	----	----	----	2	2	----	----
Floor, "slate."								
Thickness of bed	4	2	3	9	4		2	8½
Thickness of sample	2	8	3	1	3	2½	1	10½

* Not included in sample.

Section A (sample 80119) was measured at face of 4 left main entry; section B (sample 80120) was measured at face of 1 left heading; section C (sample 80121) was measured at face of 5 right entry; and section D (sample 80122) was measured at face of main entry. The ultimate analysis of a composite sample made by combining face samples 80119 to 80122 is given under laboratory No. 80123.

System of mining, room and pillar. Coal was undercut by machine; FF black blasting powder was used. Coal was screened on shaker screens and washed. Size washed, 4 inches; sizes produced, 4 inches and up. Coal was picked on belt. Output in 1920 was 186,965 tons. At the time of sampling the daily output was 700 tons, all from advance workings. In 1921 life of mine was estimated at 12 years.

ANALYSES OF DELIVERED COAL

By N. H. Snyder[10]

Coal analyses help to describe the character of coals as they lie in the ground or as they are delivered to users. There is a distinct difference between "mine samples" and "delivered samples." Analyses of the mine samples of coal are plentiful, but available analyses of delivered coal are relatively few.

Mine samples are collected according to a standard method.[11] The sampler cuts a channel 2 by 6 or 3 by 4 inches from roof to floor in the face of the coal bed, and excludes from the sample any partings more than three-eights inch thick, and lenses or concretions of sulphur or other impurities more than 2 inches in maximum diameter and one-half inch thick.

Analyses of mine samples form a permanent or scientific record of the coal bed at the point sampled, and are important in determining the character of the coal in any given mine or district. When samples are taken in a standardized manner these analyses are valuable for comparison with the delivered product to show an operator whether or not his mine is being efficiency worked or whether the coal is being properly prepared, which also involves the question of whether he has suitable mechanical appliances for separation of the impurities.

Mine samples also may serve as reliable guides in the purchase of coal for the experienced purchaser who knows the impurities in the bed and the degree to which these are eliminated in mining and preparing the coal. To the average purchaser unacquainted with these details, however, dependence on mine samples may be misleading. The quality of coal indicated by the face samples can rarely, if ever, be attained in the delivered coal. Certain impurities eliminated from the formally prepared mine samples may not be eliminated by the miner in the producing of large tonnage. Some of the roof and floor may also be included if these are not of the most favorable character for mining operations. Some mine analyses, particularly those taken from geologic reports, may be either from outcrop coal or from workings not beyond the influence of weathering. When coal prices are high and competition is lessened it is easy for the miner and management to lower standards of preparation of the coal, and a return to rigid standards is always difficult.

---

[10] Engineer in charge of fuel inspection, Bureau of Mines.

[11] Holmes, J. A., The sampling of coal in the mine: Tech. Paper 1, Bureau of Mines, 1918, 22 pp.

In sampling delivered coal the Bureau of Mines follows a definite procedure.[12] A sample of not less than 1,000 pounds is systematically collected by taking equal increments at regular intervals throughout the delivery while coal is being loaded or unloaded, and crushing and reducing this sample by successive stages to laboratory size.

In using analyses of samples of delivered coal it must be recognized that the material is not always of uniform size, and that the impurities are not uniformly distributed throughout the mass; hence there will be some variation in results; and even though the same mass of coal is sampled a number of times, the analyses would only agree absolutely by chance. It is only when a large number of such analyses are available, representing a large tonnage mined over a long period, that the average value and range of variation of a particular coal become known with certainty. With reasonable tolerances, however, for these variations, delivered coal can be sampled accurately enough for all practical purposes.

Delivered coal from any given mine may vary from day to day through differences in mining or preparation, hence a record of analysis of delivered coal for any one time should not be considered as a permanent record, because the output may be greatly improved by new methods of mining and preparation; or, on the other hand, the output may deteriorate through carelessness in use of these methods.

Table 3 gives the analyses of samples collected by representatives of the various Government departments under directions of the Bureau of Mines, from coal delivered to the Government under contract. The samples were collected systematically throughout the entire delivery of coal. These records of delivered coal indicate more nearly what the consumer is likely to receive, but the amount of coal represented and the number of analyses must be carefully considered.

---

[12] Pope, G. S., Methods of sampling delivered coal and specifications for the purchase of coal for the Government: Bull. 116, Bureau of Mines, 1918, 64 pp. Pope, G. S., Directions for sampling coal for shipment or delivery: Tech. Paper 133, Bureau of Mines, 1917, 15 pp.

TABLE 3.—*Analyses of*

Where mined			Commercial name of coal	Size of coal	Approximate tons delivered
County and town	Mine	Bed			
1	2	3	4	5	6
BIBB COUNTY					
Belle Ellen	Belle Ellen	Thompson and Youngblood.	Belle Ellen	Lump	1,665
Do	Cane Creek No. 2	Youngblood		Run of mine	----
Blocton	Blocton	Thompson	Blockton Cahaba.	Lump	382
Do	do	do	do	do	81
Do	do	do	do	Lump over 6-inch shaker screen.	384
Do	Blocton No. 2, 3, 7.	do	do	Lump over 2-inch screen	590
Do	do	do	Old Tennessee Blockton Cahaba.	do	483
Garnsey	Garnsey	do	Garnsey	Steam (washed)	1,666
Do	No. 1	do		Run of mine	----
Hargrove	Hargrove	Underwood	Hargrove	Lump	978
Marvel	Marvel No. 1 and 2.	Clark and Gholson.	Marvel washed	Steam over 2-inch screen	2,067
Do	do	do	Marvel	Mixed sizes and washed	1,586
BLOUNT COUNTY					
Lehigh	No. 2	Black Creek		Run of mine	----
JEFFERSON COUNTY					
Arcadia	Arcadia	Pratt	Pratt	do	2,208
Blossburg	Blossburg	do	do	do	8,371
Do	"E"	do	Blossburg Pratt.	do	1,242
Clift	Clift	do	Pratt	do	789
Docena	Docena	do	Old Pratt	Lump over 2-inch shaker screen.	261
Dolomite	No. 2	do		Rune of mine	----
Do	do	do		do	----
Edgewater	Edgewater	do	Old Pratt	Lump	2,833
Do	do	do	do	Lump over 2½-inch shaker screen.	3,011
Do	do	do	do	Steam (screened)	3,161
Ensley	Pratt No. 4	do	do	Lump over 2½-inch screen	401
Littleton	Thomas	Mary Lee		Run of mine	----
Mineral Springs	Pratt	Pratt		Lump	1,595
Do				Lump over 2-inch bar screen.	1,337
Do				do	808

delivered coal

Proximate analysis					Calorific value per pound								
	Moisture-free coal				As received		Moisture-free		Moisture-free and ash-free				
Moisture as received	Volatile matter	Fixed carbon	Ash	Sulphur	B. t. u.	Calories	B. t. u.	Calories	B. t. u.	Calories	Number of analyses averaged	Place of delivery	Date of delivery
7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.8	35.8	58.5	5.7	1.4	14,210	7,894	14,470	8,039	15,340	8,522	34	Fort Barrancas, Fla.	1915-16
6.4	30.5	55.7	13.8	1.2	12,400	6,889	13,250	7,361	15,370	8,539	1	St. Louis testing plant.	1906
2.3	36.5	57.7	5.8	.7	13,850	7,694	14,180	7,878	15,050	8,361	11	Fort Barrancas, Fla.	1912-13
2.2	37.1	56.5	6.4	.7	13,720	7,622	14,030	7,794	14,990	8,328	3	Fort Pickens, Fla.	1912-13
2.2	37.9	56.3	5.8	.6	13,810	7,672	14,120	7,844	14,990	8,328	7	Fort Barrancas and Fort Pickens, Fla.	1914-15
2.4	36.7	58.1	5.2	.5	13,920	7,733	14,260	7,922	15,040	8,356	3	Fort Morgan, Ala.	1914-15
2.2	37.5	56.6	5.9	.6	13.710	7,617	14,020	7,789	14,900	8,278	6	Fort Barrancas and Fort Pickens, Fla.	1914-15
3.8	32.5	55.5	12.0	1.5	12,840	7,133	13,350	7,417	15,170	8,428	54	Fort Morgan, Ala.	1912-13
2.7	30.3	54.9	13.8	.6	12,460	6,922	12,810	7,117	15,040	8,356	1	St. Louis testing plant.	1906
3.3	36.3	57.2	6.5	.7	13,500	7,500	13,960	7,756	14,930	8,294	3	Fort Morgan, Ala.	1915-16
4.6	34.2	55.0	10.8	1.2	12,920	7,178	13,540	7,522	15,180	8,433	83	Fort Morgan, Ala. (for vessels).	1911-12
3.8	34.0	55.2	10.8	1.2	13,010	7,228	13,520	7,511	15,160	8,422	36	Eighth Lighthouse District, Mobile, Ala.	1911-12
5.6	26.5	56.5	17.0	1.5	11,900	6,611	12,610	7,006	15,190	8,439	1	St. Louis testing plant.	1906
2.1	29.3	57.0	13.7	1.3	12,810	7,117	13,080	7,267	15,160	8,422	10	U. S. Engineers, New Orleans, La.	1916-17
2.1	29.6	58.3	12.1	2.4	13,200	7,333	13,480	7,489	15,340	8,522	10	U. S. Penitentiary, Atlanta, Ga.	1919-20
1.4	29.7	62.1	8.2	1.5	13,980	7,767	14,180	7,878	15,450	8,583	18	U. S. Customhouse, New Orleans, La.	1914-15
2.8	31.0	58.4	10.6	1.8	13,360	7,422	13,740	7,633	15,370	8,539	10	----do ----------	1916-17
1.0	30.0	63.1	6.9	1.5	14,330	7,961	14,470	8,039	15,540	8,633	2	U. S. Navy Yard, Pensacola, Fla.	1914
3.2	27.0	66.1	6.9	.6	14,817	7,817	14,540	8,078	15,620	8,678	1	St. Louis testing plant.	1906
3.6	27.2	65.6	7.2	.6	------	-----	------	-----	------	-----	1	---- do----------	1906
1.3	28.9	65.5	5.6	1.6	14,490	8,050	14,680	8,156	15,550	8,639	12	U. S. Engineers' Office, Montgomery, Ala.	1915-16
1.0	29.8	64.1	6.1	1.7	14,480	8,044	14,630	8,128	15,580	8,656	16	U. S. Navy Yard, Pensacola, Fla.	1914
1.5	29.5	63.2	7.3	1.5	14,160	7,867	14,380	7,989	15,510	8,617	28	U. S. Engineers' Office, Montgomery, Ala.	1914-15
1.1	31.7	62.1	6.2	1.4	14,370	7,983	14,530	8,072	15,490	8,606	2	U. S. Navy Yard, Pensacola, Fla.	1914
3.2	26.2	58.7	15.1	.9	------	-----	------	-----	------	-----	1	St. Louis testing plant.	1905
1.5	28.8	59.9	11.3	1.7	13.420	7,456	13,620	7,567	15,360	8,533	12	U. S. Customhouse, New Orleans, La.	1911-12
1.3	31.0	59.6	9.4	2.1	13,850	7,694	14,030	7,794	15,490	8,606	25	----do ----------	1908-9
1.6	31.4	59.9	8.7	2.0	13,880	7,711	14,110	7,839	15,450	8,583	14	Mint Building, New Orleans, La.	1908-9

TABLE 3.—*Analyses of*

Where mined			Commercial name of coal	Size of coal	Approximate tons delivered
County and town	Mine	Bed			
1	2	3	4	5	6
JEFFERSON COUNTY—Continued					
Palos	Palos No. 1 and 2.	Mary Lee	Pratt (Palos grade).	Run of mine	3,675
Do	do	do	do	do	840
Do	do	do	do	do	518
Pinson	Dixiana	Black Creek	Imperial	Pea (washed)	5,278
Do	do	do	do	Nut and pea (washed)	7,177
Do	do	do		Nut (washed)	----
Do	do	do		Pea (washed)	----
Do	do	do	do	do	8,552
Do	do	do	do	Pea, ¾ to ⅛-inch (washed)	13,076
Pratt City (near)	Pratt	Pratt	Old Pratt	Run of mine	19,658
Do	do	do	do	do	15,380
Pratt City	do	do	Old Tennessee Pratt.	do	1,616
Do	do	do	do	Lump over 4-inch shaker screen.	1,306
Do	do	do	do	Lump over 1-inch shaker screen.	841
Do	do	do	Pratt	Lump over 1½ to 2½-inch round hole screen.	1,280
Do	do	do	do	do	148
Do	do	do	do	Lump	981
Pratt City and Edgewater.	Pratt and Edgewater.	do	do	Lump over 2-inch screen	2,074
Pratt City and Ensley.	Various	do	do	Run of mine	494
Seloca	Seloca	Jefferson		do	----
Warrior		Black Creek	Sibleys Black Creek.	do	515
Warrior and El Vista.		do	Warrior Black Creek.	do	263

delivered coal—Continued

Proximate analysis					Calorific value per pound						Number of analyses averaged	Place of delivery	Date of delivery
Moisture as received	Moisture-free coal				As received		Moisture-free		Moisture-free and ash-free				
	Volatile matter	Fixed carbon	Ash	Sulphur	B. t. u.	Calories	B. t. u.	Calories	B. t. u.	Calories			
7	8	9	10	11	12	13	14	15	16	17	18	19	20
3.4	28.9	61.4	9.7	1.0	13,390	7,439	13,860	7,700	15,350	8,528	25	U. S. Engineers' Office, Mobile, Ala.	1914-15
2.0	28.1	60.9	11.0	.8	13,380	7,433	13,650	7,583	15,340	8,522	5	U. S. Engineers' Office, Pascagoula, Miss.	1914-15
1.5	28.9	61.7	9.4	1.1	13,670	7,594	13,880	7,711	15,320	8,511	3	U. S. Engineers' Office, Gulfport, Miss.	1914-15
2.8	31.9	61.4	6.7	.6	13,920	7,733	14,320	7,956	15,350	8,528	32	U. S. Engineers' Office, Mobile Ala., and Pascagoula, Miss.	1914-15
1.7	31.7	64.9	3.4	.7	14,650	8,139	14,900	8,278	15,420	8,567	14	U. S. Engineers' Office, Jacksonville and Tampa, Fla.	1916-17
2.2	32.8	65.0	2.2	.7	14,810	8,228	15.140	8,411	15,480	8,600	1	Tipple ----------	1915
7.1	32.7	63.2	4.1	.7	13,760	7,644	14,810	8.228	15,440	8,578	7	----do ----------	1915
3.4	31.5	62.0	6.5	.6	13,900	7,722	14.390	7,994	15,390	8,550	65	U. S. Engineers, Mobile, Ala., Pascagoula and Gulfport, Miss.	1915-16
3.2	31.4	63.8	4.8	.6	14,180	7,878	14,650	8,139	15,390	8,550	125	U. S. Engineers, Mobile, Ala.	1916-17
1.3	29.5	64.1	6.4	1.5	14,350	7,972	14,540	8,078	15,530	8,628	20	U. S. Engineers, New Orleans, La.	1915-16
1.4	29.2	64.8	6.0	1.4	14,390	7.994	14,590	8,106	15,520	8,622	19	U. S. Engineers, Burwood, La.	1916-17
2.0	30.2	62.3	7.5	1.3	14,050	7,806	14.340	7,967	15.500	8,611	43	Fort Barrancas, Fla.	1912-13
1.4	30.9	62.8	6.3	1.4	14,340	7.967	14,540	8,078	15,520	8.622	30	Fort Barrancas and Fort Pickens, Fla.	1913-14
1.5	29.6	63.6	6.8	1.8	14,240	7,911	14,460	8,033	15,520	8,622	21	Fort Barrancas, Fort McRea, and Fort Pickens, Fla.	1914-15
1.1	29.4	62.8	7.8	1.5	14,130	7,850	14,290	7,939	15,500	8,611	24	U. S. Custom-House, New Orleans, La.	1909-10
1.3	29.4	64.0	6.6	1.6	14,390	7,994	14.580	8,100	15,610	8,672	6	Mint Building, New Orleans, La.	1909-10
1.3	----	----	9.4	----	13,930	7,739	14,110	7,839	15,570	8,650	14	U. S. Customhouse, New Orleans, La.	1907-8
2.2	29.8	64.3	5.9	1.4	14,300	7,944	14,620	8,122	15,540	8,633	14	U. S. Engineers, Mobile, Ala.	1914-15
1.4	30.7	63.5	5.8	1.2	14.370	7.983	14,570	8,094	15,470	8,594	9	Fort Barrancas and Fort Pickens, Fla.	1914-15
3.2	30.0	58.6	11.4	2.7	13,160	7,311	13,600	7,556	15,350	8,528	1	St. Louis testing plant.	1905
3.0	30.7	63.2	6.1	.8	14,080	7,822	14,520	8,067	15,460	8,589	12	Fort Barrancas, Fla.	1911-12
2.6	30.5	59.0	10.5	1.8	13,330	7,406	13,690	7,606	15,300	8,500	6	Fort Barrancas and Fort McRea, Fla.	1913-14

TABLE 3.—*Analyses of*

Where mined			Commercial name of coal	Size of coal	Approximate tons delivered
County and town	Mine	Bed			
1	2	3	4	5	6
JEFFERSON COUNTY—Continued					
Watson	Eldorado	Pratt	Pratt	Run of mine	1,216
Do	do	do	do	do	765
Wylam	Pratt No. 5	do	Old Pratt	Lump over 2-inch shaker screen.	556
Do	do	do	Pratt steam lump.	Lump over 1½ to 2½-inch shaker screen.	1,450
Do	do	do	do	Lump over 2½-inch round hole screen.	1,348
Do	Prat No. 8	do	Old Pratt	Lump over 2-inch shaker screen.	165
Do	Eldorado, Arcadia, Blossburg & Banner.	Pratt & Mary Lee	Pratt	Run of mine	1,316
ST. CLAIR COUNTY					
Acmar	Acmar	Henry Ellen	Acmar	Steam through 4-inch screen (washed).	2,503
Do	New Acton	Helena	New Acton	do	670
Do	do	do	do	Steam over 3-inch screen washed).	1,563
SHELBY COUNTY					
Acton	Acton	do	Acton	Steam through 3-inch screen (washed).	866
TUSCALOOSA COUNTY					
Cottondale	Gilmore	Brookwood		Run of mine	2,271
Rock Castle	Rock Castle	Jagger	Jagger	do	1,243
WALKER COUNTY					
Carbon Hill	Chickasaw No. 5.	do		Lump over ¾-inch screen	-----
Do	do	do		Run of mine	-----
Corona	Corona	Corona	Corona	Lump	300
Do	do	do	do	Lump over 2-inch shaker screen.	300
Horse Creek	No. 8	Horse Creek		Lump over 1-inch screen	-----
Payne Bend	Payne Bend	Pratt	Pratt	Run of mine	1,518
Do	do	do	do	do	1,370
Sipsey	Sipsey	Black Creek	Sipsey	Lump 3 and 5-inch (washed)	18,274
Do	do	do	do	Lump (washed)	4,038
Townley	Townley	Jagger	Carbon Hill	Lump	372

delivered coal—Continued

Proximate analysis					Calorific value per pound						Number of analyses averaged	Place of delivery	Date of delivery
Moisture as received	Moisture-free coal				As received		Moisture-free		Moisture-free and ash-free				
	Volatile matter	Fixed carbon	Ash	Sulphur	B. t. u.	Calories	B. t. u.	Calories	B. t. u.	Calories			
7	8	9	10	11	12	13	14	15	16	17	18	19	20
2.8	30.8	56.9	12.3	1.3	13,020	7,233	13,390	7,439	15,270	8,483	26	Eighth Lighthouse District, New Orleans, La.	1912-13
3.4	30.3	60.7	9.0	1.2	13,480	7,489	13,950	7,750	15,330	8,517	10	do	1914-15
1.2	30.4	63.8	5.8	1.7	14,420	8,011	14,600	8,111	15,500	8,611	4	U. S. Navy Yard, Pensacola, Flà.	1914
1.1	28.3	64.0	7.7	1.5	14,200	7,889	14,360	7,978	15,560	8,644	32	U. S. Customhouse, New Orleans, La.	1910-11
1.4	30.4	62.7	6.9	1.4	14,240	7,911	14,440	8,022	15,510	8,617	18	do	1912-13
1.3	33.4	60.0	6.6	1.8	14,200	7,889	14,390	7,994	15,410	8,561	2	U. S. Navy Yard, Pensacola, Fla.	1914
2.9	30.1	58.6	11.3	1.3	13,230	7,350	13,620	7,567	15,360	8,533	30	Eighth Lighthouse District, New Orleans, La.	1913-14
3.6	36.1	56.6	7.3	.8	13,500	7,500	14,000	7,778	15,100	8,389	17	Fort Screven, Ga.	1915-16
2.8	35.7	57.0	7.3	.8	13,580	7,544	13,970	7,761	15,070	8,372	11	do	1915-16
3.5	35.8	57.0	7.2	.9	13,470	7,483	13,960	7,756	15,040	8,356	19	do	1916-17
4.4	35.5	56.9	7.6	.5	13,290	7,383	13,900	7,722	15,040	8,356	3	Fort Morgan, Ala.	1914-15
7.0	35.0	52.8	12.2	1.0	12,160	6,756	13,070	7,261	14,890	8,272	11	U. S. Engineers, Tuscaloosa, Ala.	1914-15
1.8	28.2	61.9	9.9	.9	13,660	7,589	13,910	7,728	15,440	8,578	16	U. S. Customhouse, New Orleans, La.	1913-14
3.4	34.0	53.1	12.9	1.1	12,350	6,861	12,780	7,100	14,670	8,150	1	St. Louis testing plant.	1905
4.0	32.0	52.8	15.2	1.2	11,780	6,544	12,270	6,817	14,470	8,039	1	do	1905
2.9	38.3	52.1	9.6	1.9	13,060	7,256	13,450	7,472	14,880	8,267	3	Jackson Barracks, La.	1915-16
2.7	39.3	52.2	8.5	1.4	13,200	7,333	13,570	7,539	14,830	8,239	3	do	1914-15
2.3	32.6	54.6	12.8	.7	12,860	7,144	13,160	7,311	15,090	8,383	1	St. Louis testing plant.	1905
3.9	33.1	55.4	11.5	1.3	12,960	7,200	13,490	7,494	15,240	8,467	9	U. S. Engineers, Tuscaloosa, Ala.	1915-16
3.4	32.9	55.1	12.0	1.6	12,850	7,139	13,300	7,389	15,110	8,394	16	U. S. Customhouse, New Orleans, La.	1919-20
3.2	35.9	58.6	5.5	1.1	13,720	7,622	14,170	7,872	14,990	8,328	19	U. S. Engineers, Port Eads and Burwood, La., and points on Miss. River below Plaquemine, La.	1914-15
2.7	34.6	59.7	5.7	1.1	13,680	7,600	14,060	7,811	14,910	8,283	5	U. S. Engineers, New Orleans, La.	1921-22
4.5	33.8	53.5	12.7	1.0	12,150	6,750	12,720	7,067	14,570	8,094	8	Jackson Barracks, La.	1912-13

INDEX

Page
Abernant, coal from, analyses of 37
Abernant mine. *See* Abernant.
Acmar, coal from, analyses of 32
  description of 76-77
  delivered coal from, analyses of 112-113
Acmar mine, coal from, analyses of 33
Acton, delivered coal from, analyses of 112-113
Acton basin, coal from, analyses of 36
Acton No. 2, coal from, analyses of 36
Adger, coal from, analyses of 19
Aetna No. 3 mine, coal from, analyses of 39
  description of 90
Ajax mine, coal from, analyses of 24
  description of 62
Alabama, coal from, ash from, fusibility of 13
  coal beds of, age of 3
  coal beds of, figure showing 2
  coal-mining methods in 9-11
  coal production of, 1919-1921 8
Aldridge mine, coal from, analyses of 40
  description of 92-93
America bed, coal from, analyses of 29, 40
America Junction, coal from, analyses of 40
  description of 92-93
Arcadia, delivered coal from, analyses of 108-109, 112-113
Arcadia mine. *See* Arcadia.

Bankhead, coal from, analyses of 40
  description of 93
Bankhead mine. *See* Bankhead.
Banner mine, coal from, analyses of 25
  delivered coal from, analyses of 112-113
Barney mine, coal from, analyses of 42
  description of 97-98
Bayview mine, coal from, analyses of 24
  description of 61
Beeson Gap mine, coal from, analyses of 19
Belle Ellen, coal from, analyses of 14
  delivered coal from, analyses of 108-109
Belle Ellen mine. *See* Belle Ellen.
Belle Ellen No. 2 mine. *See* Belle Ellen.
Beltona New Tipple, coal from, analyses of 30
  description of 72-73
Benoit, coal from, analyses of 41
  description of 94-95
Bessemer, coal from, analyses of 19-20
  description of 53-54
Bessie mine, coal from, analyses of 28
Bibb County, coal from, analyses of 14-17
  description of 46-50
  production of 8
  delivered coal from, analyses of 108-109
Birmingham, coal from, analyses of 20
  description of 54
Birmingham P. O., coal from, analyses of 24
Black Creek bed, coal from, analyses of 18, 21, 25, 26, 29, 32, 43-44
  delivered coal from, analyses of 108-109
Blanche, coal from, analyses of 19
Blocton, coal from, analyses of 14-15
  description of 46-49
  delivered coal from, analyses of 108-109
Blocton Nos. 2, 3 and 7 mines. *See* Blocton.
Blocton No. 10 mine, coal from, analyses of 14
  description of 47
Blossburg, coal from, analyses of 21
  description of 56-57
  delivered coal from, analyses of 102, 103, 106-107
Blossburg mine. *See* Blossburg.
Blount County, coal from, analyses of 18-19
  description of 51-53

Page
  production of 8
  delivered coal from, analyses of 108-109
Blue Creek bed, coal from, analyses of 19, 24, 40
Blue Creek No. 3 mine, coal from, analyses of 19
Boothton, coal from, analyses of 34, 35
  description of 80-82
  delivered coal from, analyses of 112-113
Boothton Nos. 1, 2 and 3 mines. *See* Boothton.
Bradford, coal from, analyses of 21
  description of 58
Bradford mine. *See* Bradford.
Bray bed, coal from, analyses of 20
Brilliant, coal from, analyses of 32
  description of 75-76
Brilliant Nos. 5 and 7 mines. *See* Brilliant.
Broken Arrow bed, coal from, analyses of 33
Brookwood, coal from, analyses of 37-38
  description of 87-88
Brookwood bed, coal from, analyses of 37-40
  delivered coal from, analyses of 112-113
Brookwood Nos. 7, 10 and 12 mines. *See* Brookwood.
Buck bed, coal from, analyses of 35

Cahaba field, extent of 1
  faults in 6
  geology of 3
  sections of, figure showing 4, 5
  topography of 3
Cahaba mine, coal from, analyses of 20
  description of 54
Calumet, coal from, analyses of 41
  description of 95
Calumet mine. *See* Calumet.
Cane Creek No. 2 mine, coal from, analyses of 14
  delivered coal from, analyses of 108-109
Carbon Group mine, coal from, analyses of 18
  description of 52
Carbon Hill, coal from, analyses of 41
  description of 95
  delivered coal from, analyses of 112-113
Cardiff, coal from, analyses of 21
Carter bed, coal from, analyses of 37, 38
Cedar Cove bed, coal from, analyses of 38
Cedar Cove No. 1 mine, coal from, analyses of 38
  description of 88
Cedar Cove No. 2 mine, coal from, analyses of 38
  description of 88
Central drift, coal from, analyses of 38
Chickasaw mine, delivered coal from, analyses of 112-113
Chickasaw No. 5 mine, coal from, analyses of 41
  delivered coal from, analyses of 112-113
Clark bed, coal from, analyses of 17, 34-35
  delivered coal from, analyses of 108-109
Clift, coal from, analyses of 22
  delivered coal from, analyses of 108-109
Clift mine. *See* Clift.
Climax mine, coal from, anlayses of 36
Coal Branch mine, coal from, analyses of 32
Coal City, coal from, analyses of 32
Coal City bed, coal from, analyses of 32
Coal Valley, coal from, analyses of 42
  description of 96-97
Coal Valley mine. *See* Coal Valley.
Coaling, coal from, analyses of 38
  description of 88
Coalmont, coal from, analyses of 35
  description of 82-83

Page
Coalmont mine. *See* Coalmont.
Coalmont Nos. 2 and 4 mines. *See* Coalmont.
Coleanor, coal from, analyses of 16
Coleanor mine. *See* Coleanor.
Coosa field, extent of 1
  faults in 6
  geology of 3
  sections of, figure showing 5
  topography of 3
Cordova, coal from, analyses of 42
  description of 97-98
Corona, delivered coal from, analyses of 112-113
Corona bed, coal from, analyses of 42
  delivered coal from, analyses of 112-113
Corona mine. *See* Corona.
Cottondale, delivered coal from, analyses of 112-113

Daley mine, coal from, analyses of 16
Davis (Tillman Station), coal from, analyses of 33
DeKalb County, coal from, analyses of 19
Dixiana No. 4 mine, coal from, analyses of 29
  delivered coal from, analyses of 110-111
Docena, coal from, analyses of 22
  description of 58-59
  delivered coal from, analyses of 108-109
Docena mine. *See* Docena.
Dolomite, coal from, analyses of 23
  description of 59-60
  delivered coal from, analyses of 108-109
Dolomite Nos. 1 and 2 mines. *See* Dolomite.
Dora, coal from, analyses of 43
  description of 99-100
Dora fuel mine, coal from, analyses of 43

"E" mine. *See* Blossburg.
Edgewater, coal from, analyses of 23
  description of 60-61
  delivered coal from, analyses of 108-109, 110-111
Edgewater mine, coal from, analyses of 27
Eldorado mine, delivered coal from, analyses of 112-113
El Vista, delivered coal from, analyses of 110-111
Empire, coal from, analyses of 44
  description of 101-102
Empire Nos. 1 and 2 mines. *See* Empire.
Ensley, coal from, analyses of 24
  description of 62
  delivered coal from, analyses of 108-109, 110-111
Etowah County, coal production of 8
Eureka No. 2 mine, coal from, analyses of 36

Fairchild mine, coal from, analyses of 19
Falliston, coal from, analyses of 35
Falliston mine. *See* Falliston.
Fieldner, A. C., work cited 12, 13
Fort Payne, coal from, analyses of 19

Galloway No. 11 mine, coal from, analyses of 41
  description of 95-96
Galloway No. 15 mine, coal from, analyses of 45
  description of 104-105
Garnsey, coal from, analyses of 16
  delivered coal from, analyses of 108-109
Garnsey mine. *See* Garnsey.
Gohlson bed, coal from, analyses of 16, 34-36
  delivered coal from, analyses of 108-109
Gilmore mine, delivered coal from, analyses of 112-113
Glen Carbon, coal from, analyses of 35
Glen Carbon mine. *See* Glen Carbon.
Gorgas, coal from, analyses of 44
  description of 102, 103
Gould bed, coal from, analyses of 26, 37

Page
Hale, S. A., work cited 8
Hamilton slope mine, coal from, analyses of 29
  description of 70
Hargrove, delivered coal from, analyses of 108-109
Hargrove mine. *See* Hargrove.
Harkness bed, coal from, analyses of 20, 33-34
Helena, coal from, analyses of 35, 36
  description of 83-84
Helena bed, coal from, analyses of 35-37
  delivered coal from, analyses of 112-113
Henryellen, coal from, analyses of 24
Henry Ellen bed, delivered coal from, analyses of 112-113
Hills Creek mine, coal from, analyses of 17
  description of 50-51
Holmes, J. A., work cited 106
Horse Creek, coal from, analyses of 45
  delivered coal from, analyses of 112-113
Horse Creek bed, coal from, analyses of 45
  delivered coal from, analyses of 112-113

Indio bed, coal from, analyses of 26

Jagger bed, coal from, analyses of 37, 39-41, 45
  delivered coal from, analyses of 112-113
Jefferson bed, coal from, analyses of 25-26, 30-31
  delivered coal from, analyses of 110-111
Jefferson County, coal from, analyses of 19
  description of 53-73
  production of 8
Johns, coal from, analyses of 24
  description of 62-63
Johns mine. *See* Johns.

Kellerman, coal from, analyses of 38
Kershaw mine, coal from, analyses of 43
  description of 99-100
Kimberly, coal from, analyses of 25
  description of 63-64
Kimberly Nos. 2 and 3 mines. *See* Kimberly.
Klondyke shaft mine, coal from, analyses of 14
  description of 46
Kosmo mine, coal from, analyses of 26

Labuco, coal from, analyses of 25
  description of 64-65
Labuco mine. *See* Labuco.
Langley mine, coal from, analyses of 31
  description of 73
Lehigh, coal from, analyses of 18
  description of 51
  delivered coal from, analyses of 108-109
Lehigh mine. *See* Lehigh.
Lewisburg, coal from, analyses of 25
  description of 65-66
Littleton, coal from, analyses of 25
  delivered coal from, analyses of 108-109
Lovick, coal from, analyses of 26
Lower Nunnally bed, coal from, analyses of 20

Majestic, coal from, analyses of 26
Majestic mine. *See* Majestic.
Mammoth bed, coal from, analyses of 24
Margaret, coal from, analyses of 33
  description of 77-80
Margaret No. 1 mine, coal from, analyses of 33, 34
Margaret No. 2 mine, coal from, analyses of 33
  description of 79-80
Margaret Nos. 3 and 5 mines. *See* Margaret.
Marion County, coal from, analyses of 32
  description of 75-76
Marvel, coal from, analyses of 16-17
  description of 49-50
  delivered coal, analyses of 108-109
Marvel mine. *See* Marvel.
Marvel Nos. 1, 2 and 3 mines. *See* Marvel.

Page

- Mary Lee bed, coal from, analyses of 25, 27-30, 40-43, 45
  - delivered coal from, analyses of 108-109
- Mary Lee No. 1 mine, coal from, analyses of 25
  - description of 65-66
- Maylene, coal from, analyses of 36-37
- Maylene mine. *See* Maylene.
- Mildale bed, coal from, analyses of 37-39
- Mineral Springs, coal from, analyses of 26
  - delivered coal from, analyses of 108-109
- Montevallo bed, coal from, analyses of 37
- Morris, coal from, analyses of 26
- Mossboro mine, coal from, analyses of 36
  - description of 84-85
- Mount Carmel No. 1 mine, coal from, analyses of 42
  - description of 97-99
- Mount Carmel No. 2 mine, coal from, analyses of 42
  - description of 98-99
- Mulga, coal from, analyses of 26
- Mulga mine. *See* Mulga.

- New Acton mine, coal from, analyses of 32
  - description of 76-77
  - delivered coal from, analyses of 112-113
- New Castle, coal from, analyses of 27
  - description of 66-68
- New Castle bed, coal from, analyses of 27
- New Castle Nos. 2 and 6 mines. *See* New Castle.
- New Slope mine, coal from, analyses of 38
- Nickel Plate bed, coal from, analyses of 19, 21, 26, 28, 45
- Norris mine, coal from, analyses of 15
  - description of 49
- No. 3 Roebuck mine, coal from, analyses of 35
- No. 4 Roebuck mine. *See* Roebuck.
- Nyota, coal from, analyses of 18
  - description of 52-53
- Nyota Group mine, coal from, analyses of 18
  - description of 52-53

- Overton Slope No. 1 mine, coal from, analyses of 20
  - description of 55
- Overton Slope No. 2 mine, coal from, analyses of 21
  - description of 56

- Palos, coal from, analyses of 28
  - description of 68-69
  - delivered coal from, analyses of 110-111
- Palos Nos. 1 and 2 mines. *See* Palos.
- Parkwood mine, coal from, analyses of 20
  - description of 54
- Parrish, coal from, analyses of 45
  - description of 103
- Parrish mine. *See* Parrish.
- Parsons, coal from, analyses of 33
- Paynes Bend, coal from, analyses of 45
  - description of 104
  - delivered coal from, analyses of 112-113
- Paynes Bend No. 1 mine. *See* Paynes Bend.
- Pinkney, coal from, analyses of 28
- Pinkney No. 1 mine, coal from, analyses of 21
  - description of 56-57
- Pinkney No. 2 mine, coal from, analyses of 21
  - description of 57-58
- Pinson, coal from, analyses of 29
- Piper, coal from, analyses of 17
- Piper No. 1 mine. *See* Piper.
- Plateau field, extent of 2
  - faults in 6
  - geology of 3
  - topography of 3
- Pope, G. S., work cited 107
- Pratt and Edgewater mine. *See* Pratt City.
- Pratt and Mary Lee bed, delivered coal from, analyses of 112-113

Page

- Pratt bed, coal from, analyses of 21-24, 26-31, 44-45
  - delivered coal from, analyses of 108-109
- Pratt City, coal from, analyses of 29
  - description of 69-71
  - delivered coal from, analyses of 110-111
- Pratt fuel mine, coal from, analyses of 43
  - description of 99
- Pratt mine, delivered coal from, analyses of 108-109
- Pratt No. 4 mine, coal from, analyses of 24-31
  - delivered coal from, analyses of 108-109
- Pratt No. 5 mine, coal from, analyses of 31
  - delivered coal from, analyses of 112-113
- Pratt No. 8 mine, coal from, analyses of 31
  - delivered coal from, analyses of 112-113
- Pritchett mine, coal from, analyses of 31

- Red Feather mine, coal from, analyses of 15
  - description of 48
- Republic, coal from, analyses of 30
- Risco mine, coal from, analyses of 28
  - description of 68-69
  - delivered coal from, analyses of 110-111
- Rock Castle, coal from, analyses of 39
  - delivered coal from, analyses of 112-113
- Rock Castle mine. *See* Rock Castle.
- Roebuck, coal from, analyses of 37
  - description of 83-84
- Rutliffe mine, coal from, analyses of 26

- St. Clair County, coal from, analyses of 32-34
  - description of 76-80
  - production of 8
  - delivered coal from, analyses of 112-113
- Sanie, coal from, analyses of 33
  - description of 79-80
- Sayre, coal from, analyses of 30
  - description of 71-72
- Sayre mine. *See* Sayre.
- Sayreton, coal from, analyses of 30
- Sayreton mine. *See* Sayreton.
- Searles, coal from, analyses of 39
  - description of 89-91
- Searles mine. *See* Searles.
- Seloca, delivered coal from, analyses of 110-111
- Seloca mine. *See* Seloca.
- Selvig, W. A., work cited 13
- Shelby County, coal from, analyses of 34-37
  - description of 80-87
  - production of 8
  - delivered coal from, analyses of 112-113
- Sipsey, delivered coal from, analyses of 112-113
- Sipsey mine, coal from, analyses of 44
  - delivered coal from, analyses of 112-113
- Slope mine, coal from, analyses of 39
  - description of 87-88
- Stanton, F. M., work cited 12
- Star-Cahaba (Elvira) No. 1 mine, coal from, analyses of 37
- Star-Cahaba No. 2 mine, coal from, analyses of 37
- Stith mine. *See* Aldridge mine.
- Straven, coal from, analyses of 37
  - description of 86-87
- Straven mine. *See* Straven.
- Summit No. 1 mine, coal from, analyses of 43
  - description of 100
- Summit No. 2 mine, coal from, analyses of 43
  - description of 100-101
- Swansea, coal from, analyses of 19
- Swansea bed, coal from, analyses of 19
- Sydenton, coal from, analyses of 37

- Tacoa, coal from, analyses of 37
- Thomas mine, coal from, analyses of 25
  - delivered coal from, analyses of 108-109
- Thompson and Youngblood mine, delivered coal from 108-109

Page

Thompson bed, coal from, analyses of 15, 17, 35, 36, 37
Tico mine, coal from, analyses of 15
  description of 47-48
Tidewater, coal from, analyses of 40
Tidewater mine. *See* Tidewater.
Townley, coal from, analyses of 45
  description of 104-105
  delivered coal from, analyses of 112-113
Townley mine. *See* Townley.
Tryon, F. G., work cited 8
Tuscaloosa County, coal from, analyses of 37-40
  description of 87-92
  production of 8
  delivered coal from, analyses of 112-113
Tutweller No. 3 drift, coal from, analyses of 28

Underwood bed, delivered coal from, analyses of 108-109
Underwood prospect pit, coal from, analyses of 19
Upper Nunnally or Glass bed, coal from, analyses of 21
Upper Straven bed, coal from, analyses of 37

Valley mine, coal from, analyses of 38
  description of 88
Virginia mine, coal from, analyses of 19
  description of 53-54
Vulcan No. 4 mine, coal from, analyses of 33

Wadsworth bed, coal from, analyses of 37
Walker County, coal from, analyses of 40-45
  description of 92-105
  production of 8
  delivered coal from, analyses of 112-113
Warner mine, coal from, analyses of 30
Warrior, coal from, analyses of 30
  description of 72-74
  delivered coal from, analyses of 110-111
Warrior field, extent of 1
  faults in 6
  geology of 3
  sections of, figure showing 4
  topography of 3
Watson, delivered coal from, analyses of 112-113
Watt mine, coal from, analyses of 31
West Blocton, coal from, analyses of 17
  description of 50-51
Winona mine, coal from, analyses of 45
Winston County, coal from, production of 8
Woodstock bed, coal from, analyses of 14, 17
  description of 46
Wylam, coal from, analyses of 31
  description of 74-75
  delivered coal from, analyses of 112-113
Wylam No. 5. *See* Wylam.
Wylam No. 8 mine, coal from, analyses of 29
  description of 71

Yellow Creek bed, coal from, analyses of 19
Yellow Creek mine, coal from, analyses of 19
Yessick bed, coal from, analyses of 15
Yolande, coal from, analyses of 40
  description of 91-92
Yolande Nos. 1 and 4 mines. *See* Yolande.
Youngblood bed, coal from, analyses of 14, 16
  delivered coal from, analyses of 108-109

h'
1234

DEC1960